Journal

of the

Royal Naval Medical Service.

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Royal Naval Medical Service

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VOL. II.

1916

JOHN BALE, SONS & DANIELSSON, LTD.

OXFORD HOUSE

83-91, GREAT TITCHFIELD STREET, OXFORD STREET, W.

Volume II January 1916 No 1

Journal
of the
Royal Naval Medical Service.

Original Articles.

TWO MONTHS WORK IN THE R N HOSPITAL SHIP "REWA" AT THE GALLIPOLI BEACHES

By THE MEDICAL STAFF OF THE REWA

THE CONDITIONS IN GENERAL ORGANIZATION AND TREATMENT OF WOUNDED

By Fleet Surgeon FREDERICK J A DALTON R N
Senior Medical Officer

We commenced work on the Beaches on June 29, 1915 and left the Gallipoli Peninsula with our last load of wounded for England on August 29 The routine for hospital ships working at the Front is as follows all cases from the Beach come off to the hospital ship serving that Beach are sorted on board, and the lighter cases (generally wounded who can walk) are sent to an advanced base by trawlers usually stopping on board about twelve hours, this allows time to do their dressings, get them clean and fed before passing them on to the advanced base The more seriously wounded are retained on board the hospital ship, and this process of sorting is continued until all the available beds are occupied, when the ship is relieved by another and takes her load of wounded to one of the Mediterranean bases or home to England. The actual time spent at the Beach varies very much, if an attack in force is taking place, it is quite possible to have all the beds full in under twenty four hours whereas to get the same number on another occasion may take a week or even longer

During this two months a total of 7,424 patients was treated in this ship of whom 5647 were discharged to the advanced base 1528 were carried in the ship to base hospitals at Malta, Alexandria and Plymouth, and 149 died on board

During the same period 507 operations were performed on board under general anæsthesia The majority of these were not set operations at all, but might best be described as a thorough cleansing and irrigation of large wounds with efficient drainage

In this article it is proposed to make a few remarks on the lessons brought home to my colleagues and myself in dealing with such large numbers of wounded they shall be without fear or favour of the titanic conflicts at present taking place in the medical press on the subject of the *only* right way to treat wounds

The longer one works with these large numbers of wounded the more one returns to the old principles underlying all surgical practice of wounds viz, first thorough cleansing and second efficient drainage We all began with our preconceived fads as to which lotions were the best for cleansing wounds but gradually it is being brought home to us that it makes very little difference if any to the end results what lotion is used provided the cleansing and irrigation are thorough

What we find does make a very great difference to our end results is the time that elapses between the infliction of the wound and its attention on board this ship We have now had the opportunity of working more than once at each of the three beaches from which wounded are brought off and the difference in the condition of the patients from each Beach is most marked

(1) Helles Beach provides by far the most septic type of case The average time between the men being wounded and received on board is from twenty-two to twenty four hours, some being as long as three days The reason for this apparently is that the front line trenches are further from the Beach, and patients have to be brought back along the trenches and cross communicating trenches, owing to the hill and plateau being commanded by the enemy's fire It is surprising the number of men from this Beach that are found to have defecated in their trousers When it is remembered that severe diarrhœa is very prevalent and as can be seen by a glance at the list of operations in this paper, that compound comminuted fractures of the thigh are also very prevalent it is not difficult to imagine that one is fighting for good end results under very adverse conditions The flies are also far more numerous on this Beach than on the other two, every patient is hoisted on board

black with flies, and very soon after the first load or two [illegible] received the decks and wards are also black with [illegible] wounds are found on arrival to be already swarming with [illegible] Also this is the only Beach from which we get cases if [illegible]

(2) Anzac Beach is by far the best from our point of view, the front line of trenches being only a short distance from the [illegible] the average time taken to put men on board after they have been wounded being five to six hours There are fewer flies, and the Australians and New Zealanders who occupy this Beach are very fine men physically The results obtained from exactly similar wounds under exactly similar treatment are far better in cases from this Beach than from the other two

(3) Suvla Beach comes between Helles and Anzac as to the septicity of the cases The average time taken to put a wounded man on board the ship after being wounded is between nine and ten hours We have had no gas gangrene cases from this Beach but we have had wounds with maggots already crawling about them

It will be seen from the above description of the three Beaches that results depend much more on what Beach is worked than on what particular antiseptics are favoured or, in other words on how soon we get our patient after he is wounded

The routine of dealing with cases on board is as follows Every patient is seen by a medical officer as he is hoisted into the ship or walks on board if he is considered to be a suitable case for examination in a theatre he is laid down on deck outside one or other theatre to await his turn, if not, he is turned into a cot or if a walking case, sent to a dressing station on board to be dressed by other medical officers, sisters, and sick berth staff

Usually all compound fractures head injuries, injuries about the neck cases requiring amputation all wounds where fresh hæmorrhage is taking place large bomb or shell wounds which are almost certain to become septic, certain abdominal wounds (for example where the bladder has been wounded, or where there is a protrusion of gut or omentum), are taken into the theatres before being put to bed Wounded generally come in rushes, and, as a rule, very soon after commencing to take in all three operating tables are going and on more than one occasion have been kept going for twelve and fourteen hours without cessation There is no doubt that this immediate dealing with all the more serious cases has been the means of saving many lives and more limbs

The work can only be done in this way if the hospital ship is well equipped and the whole staff are zealous enough to go

on working till they drop. I consider myself to have been more than fortunate in both respects.

In order that this article may be thoroughly representative of the views of the whole medical staff of the ship, I have asked each of my colleagues to write a short paper on certain subjects which have impressed us all, and on all these subjects we are, for medical men, wonderfully closely in agreement.

A list of the operations performed on our second, third, fourth, fifth and sixth trips to the Beaches is appended, but unfortunately no proper record was kept of those done on the first trip; everyone was so hard worked that no time could be given to this, and only a record of the number could be kept.—

(A)	Amputations—	
	Fingers	7
	Hand	2
	Arm	7
	Toes	2
	Leg	6
	Thigh	6
	Excision of eye	21
	Total	51
(B)	Other operations on eye	3
(C)	Fracture wounds—	
	Scapula	2
	Humerus	14
	Radius and ulna	8
	Femur	42
	Tibia and fibula	23
	Jaws	9
	Depressed fracture of skull	45
	Total	143
(D)	Wounds of joints—	
	Knee	12
	Elbow	5
	Total	17

(D)	Regional wounds (cleansing and draining)—	
	Face	16
	Neck	5
	Chest	4
	Back	1
	Abdominal wall	1
	Abdomen	11
	Shoulder	15
	Arm and forearm	10
	Hand	5
	Thigh	29
	Leg	11
	Foot	6
	Buttock	1
	Genitals	1
	Orbit	
	Total	111
(E)	Inflammatory—	
	Cellulitis of foot	1
	, arm	1
	Abscess	1
	Total	15
(G)	General—	
	Ligature—femoral artery	1
	, posterior tibial artery	1
	radial artery	1
	ulnar artery	1
	Secondary hæmorrhage	1
	Aspiration of thorax	1
	Gangrene of thigh	1
	Stricture	1
	Strangulated hernia	1
	Appendicitis	3
	Total	15
	Grand Total	383

Many smaller operations, chiefly for removal of bullets or foreign bodies or cellulitis, were done under local anæsthesia

My own impressions can be summed up as follows —

(1) Clean wounds through soft structures can in the majority of cases be left with their field dressings on, and will heal without any interference

(2) Of all the varieties of septic wounds none can be tackled too early after their arrival on board

(3) Nearly all compound fractures should be thoroughly irrigated before being put up, openings being enlarged and torn muscles cut away if necessary for thorough cleansing

(4) All fractures of skull with the slightest depression should be operated on however desperate the case may appear

(5) The majority of abdominal wounds should not be operated on but should be kept deeply under morphia for first forty eight hours

(6) Chest wounds do remarkably well without any treatment provided no big vessel has been torn

(7) The probe should be left out of the armamentarium supplied to the surgeon in war time

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HEAD INJURIES WOUNDS OF THE SCALP AND CRANIUM

By Surgeon ARTHUR R. FISHER, R.N.

The wounds of the head received on the Gallipoli Peninsula are caused by rifle bullets, shrapnel, and splinters of shell, in point of frequency, shrapnel and rifle bullets appear in about equal proportions shell wounds being rare

These wounds may be classified into three groups —

(1) Simple scalp wounds

(2) Fracture of skull without penetration

(3) Penetrating wounds of skull

Group 1 —Wounds of the first class are quite common and are caused by any of the aforesaid means They need little mention except with regard to the attention that should be paid to all scalp wounds received on board, in order to satisfy oneself that the scalp wound is uncomplicated by some more serious lesion At the time the first field dressing is applied, it is impossible to make a thorough examination; consequently many cases of fractured skull and other cerebral lesions turn up on board as simple scalp wounds the fact that many cases of cranial injury have at first few or no symptoms makes the oversight all the easier

During our last trip to the Beaches four interesting cases were discovered amongst those labelled scalp wound —

(1) The first turned out to be a penetrating wound of the left parietal bone from the subsequent symptoms it was evident that the bullet had lodged in the right side of the brain, at first paresis of the right side of the body was very marked but now twelve days after injury, this has nearly disappeared

[illegible] id was [illegible] with no fracture of the [illegible] operation developed. The case was [illegible] progressing well.

(3) The third was a small depressed fracture with a shrapnel bullet *in situ*, necessitating removal of bullet and elevation of fractures.

(4) This was a septic scalp wound fifteen days old. Symptoms of compression developed at the operation a depressed fracture and a small cerebral abscess were found.

Group 2.—This type of wound is usually caused by long range rifle fire or by shrapnel. A few cases were the result of high velocity bullets and were gutter fractures. One case in a naval rating was caused by a piece of high explosive shell. These cases from a surgical point of view are very hopeful particularly if treated early. In this ship the treatment adopted has been to shave and disinfect the scalp widely, to remove the bullet and any loose bone or blot clot, to enlarge the bony wound to ensure free drainage, to chip off all irregular edges of bone and elevate when necessary, a drainage tube is invariably inserted.

Given asepsis the prognosis of these cases is very favourable. The common complications are œdema of the brain, meningitis, and cerebral abscess. Subdural hæmorrhage not infrequently complicates these cases, the bleeding being probably due to the rupture of a small vein by the original injury. At the time of operation the extent of the bleeding is slight and is overlooked, afterwards the hæmorrhage increases and cerebral symptoms insidiously come on, necessitating a second decompression.

Unfortunately we have had few opportunities of following our cases until the period when secondary complications arise, in fact those received during our last trip are the only cases we have been able to keep for more than three or four days.

During our last visit to the Beaches, seven cases of the second type of head injury were treated. Six are now progressing favourably and one developed compression, necessitating a second operation at which a small cerebral abscess was found; there was marked œdema of the brain and also an extensive subdural hæmorrhage. He is at present in a precarious state.

Of these seven cases the dura mater was intact in three, was slightly torn in three, and considerably torn in one. This latter case exuded brain substance on to his dressings for the first four days and the wound then dried up and healed. Slight tearing of the dura

in these cases does [illegible] matter greatly provided that the wound remains [illegible] With regard to the ones in which the scalp wound was [illegible] pieces of the inner table damaged the dura and caused a cerebral abscess

Group 3 —Penetrating wounds of the skull are generally due to high velocity bullets, they can be divided into two main varieties —

(1) Those with an entrance wound only, the bullet remaining within the skull

(2) Those with both entrance and exit wounds.

Both varieties are unsatisfactory from a surgical point of view and very little can be done for them It has been the routine to take all these cases into the operating theatre, give an anæsthetic if necessary, shave and purify the scalp widely remove all loose bone, chip away any jagged edges, turn out blot-clot secure the bleeding point and establish free drainage, no effort is made to locate the bullet by probing

During our last visit ten cases of this class were received two died within twenty-four hours, six died on passage to England and the other two are at present progressing favourably, the one a case of entrance and exit wounds in the occipital region, the other a case of entrance wound in the left parietal bone with the bullet lodged in the right brain

It is impossible to give the exact figures of the head injuries, owing to the great pressure of work which always prevailed when we were receiving cases at the Beaches, but it may be roughly stated that fractured skull accounted for nearly 10 per cent of all severely wounded received, and for over 20 per cent of those who died of wounds on board

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INJURIES TO LARGE VESSELS

BY HUBERT CHITTY F.R.C.S. K.N.V.R.

[illegible] the main arteries and veins form a large [illegible] [illegible] A considerable number have been [illegible] [illegible] Rewa and taken as a whole they have [illegible] In only one instance only was death attributable solely to hæmorrhage. A number of other cases have unfortunately proved fatal, but in all of these death has been due in large measure to associated injuries or to the onset of complications such as gangrene. Patients when first seen are usually much collapsed from loss of blood, and not in a condition to stand a prolonged operation. In spite of this immediate ligation of the bleeding vessel should be the rule. In desperate cases forceps may be left on the ends of the divided vessel, and incorporated in the dressing to save time. They may be safely removed the following day. The patient may require intravenous infusion, and when he reaches the ward should be given saline by the rectum.

Bleeding frequently gives rise to a large hæmatoma. Especially is this likely to be the case when the wound has been inflicted by a rifle bullet. Here too, unless the presence of other injuries contra-indicates early operation should be resorted to. Such cases when left unoperated upon frequently suffer from reactionary hæmorrhage, or later develop false or arterio-venous aneurysms.

Severe bleeding is almost invariably found to proceed from a "button-holed" vessel, usually an artery. Even main vessels when completely cut across, retract, and hæmorrhage (if not quickly fatal) tends to stop spontaneously or with the aid of pressure. We have had at least three instances on board in which there was every reason to suppose that the brachial artery had been divided, but not one of them called for operation for the arrest of bleeding.

In operating upon wounded vessels the wound itself has been so freely irrigated with blood that it may afterwards be safely closed without fear of septic infection. To avoid needless hæmorrhage the limb should whenever possible, be rendered bloodless before the commencement of the operation. Rapidity in operating is essential. To facilitate this a good light, a capable assistant, a free incision, and efficient retraction are necessary. The presence of a large hæmatoma infiltrating and distorting the tissues is apt to obscure the relation of parts and to render their recognition difficult.

The following is a fairly complete list of cases which have been

under the care of the various surgeons on board this ship. I have selected a few of special interest for description. In each fatal case I have appended the numerical birth. The cases fall naturally under the following headings:—

(1) The cases in which vessels were ligated to arrest external hæmorrhage.

(2) The cases in which vessels were ligated to prevent increase in the size of a hæmatoma.

(3) The cases complicated with the development of an aneurysm.

(4) The cases in which vessels had been divided, but which were not secured with any of the above.

Class I.

Cases in which vessels were ligated:—

Vessel	Result	Remarks
(A) Right subclavian	Death	Death was due to hæmorrhage
(B) Axillary	Recovery	—
(C) Radial and ulnar	—	Both had been divided immediately below the origin
(D) Radial		—
(E) Femoral	Death	Death due to gangrene. Case complicated by compound fracture of femur
(F) Posterior tibial	Recovery	—
(G) Anterior "	"	Associated with fracture of tibia
(H) "	"	—
(I) Femoral vein	"	The only instance in which injury of a vein alone necessitated its ligation

Class II.

Vessel	Result	Remarks
(A) Axillary	Recovery	—
(B)	Death	Death due principally to associated fracture of humerus and wound of thorax
(C) Subscapular	Recovery	—
(D) Brachial		—
(E) Radial		—
(F) Profunda femoris		*Vide infra*
(G) Femoral artery and vein		*Vide infra*
(H) Posterior tibial	"	—
(I)		Gangrene of the wound necessitated amputation through the thigh. The case subsequently did well

CASE F.—This was a case of compound fracture of the [illegible] thigh. The wounds of entry and exit were small and clean. [illegible] after admission the patient was [illegible] with severe pain in the thigh which rapidly swelled to an enormous size. Several free incisions were made and blood was found infiltrating all the tissues. After much searching it was found that slacking of the tourniquet caused bright blood to well up at one spot. The injured vessel proved to be the profunda femoris, which had been pierced by a much like spicule of bone. The vessel was divided and tied. The wounds were completely closed and healed by first intention.

CASE G.—When admitted a large haematoma of the thigh was present. It was said not to have increased for some hours. No pulsation could be felt in the tibial artery. The patient seemed comfortable. As we were very busy at the time and as operation did not seem urgently called for expectant treatment was adopted. Three days later there was a sudden increase in the size of the swelling, and the patient complained of intense cramp in the thigh.

The femoral vessels were exposed in Hunter's canal. It was then seen that a bullet had passed between the two button holes, each. Both were divided and tied. The wound was completely closed and the patient made an uninterrupted recovery. Had the case been left an arterio-venous aneurysm would almost certainly have developed later.

CLASS III.

Vessel	Result	Remark
(A) Carotid	No change	Not operated upon
(B) Radial	Recovery	Sac opened, ends of vessel ligated
(C) Popliteal		Sac opened, artery completely divided and both ends secured
(D) "	"	*Vide infra*

CASE D.—A bullet passing from before backwards had shattered the head of the fibula and injured the popliteal just where it bifurcates. An aneurysm had formed and was pointing anteriorly.

The sac was opened from the front. The lower end of the popliteal and the origins of the two tibials were caught up in forceps. The interior tibial was then tied. Pressure forceps were left on the other two vessels for twenty-four hours and then removed. Recovery was uninterrupted.

CLASS IV

I can only find three cases in which a large vessel was completely divided without very severe hæmorrhage ensuing In each case the vessel involved was the brachial artery and in each it was associated with fracture of the humerus —

Vessel	Result	Remarks
(A) Brachial	Death	Death due to acute spreading gangrene
(B)		Death due to extensive injuries of chest and other parts
(C)	Recovery	*Vide infra*

CASE C —When admitted patient's hand and forearm were cold and insensitive No pulse could be felt at the wrist Next day the condition was the same but there was some purple mottling of the fingers This did not progress, and at the end of six days warmth and sensibility had completely returned

The above cases are illustrative of an extremely interesting class of injury, common in warfare but hitherto almost unknown to me personally I have therefore deemed them worthy of putting upon record

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WOUNDS OF THE THORAX

By Temporary Surgeon THOMAS BEATON M D R N

Wounds of the thoracic region of the body may be roughly divided into four main groups —

(1) Wounds involving the heart and great vessels
(2) Wounds involving lung tissue
(3) Wounds involving the spine
(4) Superficial non-penetrating wounds

Of these groups, hospital ship experience is limited to the last two and the less severe cases of the second

That this should be so is obvious when the nature of the hæmorrhage from wounds of the first category and from severe lacerating wounds of the second is considered The impracticability of applying anything more than first aid treatment during the time when arrest of the hæmorrhage might save the patient's life and the impossibility of arresting such hæmorrhage by any means short of extensive operative procedures render such wounds

rapidly fatal The cases practically never live long [illegible] brought on board the hospital ship

The less severe wounds of the second group are in the [illegible] due to rifle bullets and occasionally to shrapnel and [illegible] to these cases it may be stated that provided no large [illegible] is injured and the shock can be counteracted the tendency for the wounds to heal with remarkably little trouble

The clinical picture at the outset is much the same in all the cases severe shock dyspnoea and a lack of mobility of the affected side are almost always to be noticed When both sides are involved the breathing is shallow and of the abdominal type

The treatment is to counteract the shock by morphia and to dress the external wounds without regard to the track of the bullet inside the thorax proper No attempt should be made to open up the wound in order to irrigate or in any way interfere with the deep track Further treatment depends entirely upon the symptoms arising

The most promising cases are those in which the bullet has completely traversed the chest and emerged again These cases once recovered from the shock, heal with extraordinary rapidity and very rarely show any sign of damage to the lung tissue A slight tinge in the sputum for twenty-four hours or so may be present sometimes not even that The dyspnoea rapidly disappears and the patient is up and about in from eight to ten days

Where the bullet has not emerged, or where compound fracture of the rib has occurred, further troubles are likely to arise Here the pleura may be lacerated and pneumo or hæmo thorax may ensue Two such cases have occurred in the ship in one of which aspiration was necessary but both were healing up satisfactorily when they left the ship The retention of the bullet or other foreign body may give rise to a localized consolidation, so far, in this ship no pus formation has resulted though one or two cases have been passed on where such a possibility might arise Here it must be remembered that the bullet, and whatever it carries in with it, is arrested by the wall of the thorax, and therefore, in the majority of cases, the disturbance will be superficial, and consequently should be fairly easily accessible

Surgical emphysema was a fairly common occurrence, especially if laceration of the pleura was present It, however, presented no urgent features and gradually subsided without any interference

The experience in this ship of these cases of perforating bullet wounds of the chest has certainly shown that if they survive the

[illegible] few days they may be expected to make very satisfactory [illegible] [illegible] [illegible]

[illegible] Entry left side of chest [illegible] in [illegible] [illegible] Exit directly behind at level of eighth dorsal vertebra [illegible] Shock at first severe [illegible] Wound practically healed [illegible] No hæmoptysis [illegible]

GUNSHOT WOUNDS OF THE ABDOMEN

BY SURGEON G. ROBERTSON MILNE, R.N.V.R.

The high mortality of wounds involving the abdominal cavity is shown by the fact that of ninety-six consecutive deaths from wounds [illegible] thirty were due to this cause, the remainder which in fourteen cases consisted with wounds of the head or chest. A [illegible] of the cases were obviously hopeless on [illegible] and when moribund on landing. Out of fourteen which came under observation in the wards nine proved fatal. Shock, peritonitis and internal hæmorrhage were the immediate causes of death, [illegible] only the second, which two cases died suddenly after a profuse and sudden discharge [illegible] by the rectum.

The gravest cases were those in which the bullet traversed the abdomen from side to side; the least dangerous those in which it appeared to have penetrated one lateral region in a more or less antero-posterior direction. It was noticed that where an abdominal lesion complicated a penetrating wound of the thorax the prognosis was very grave and the issue invariably fatal.

The frequently favourable course of penetrating wounds of the abdomen caused by the rifle bullet is well known and was illustrated by several cases under our care, but a very large proportion of our cases have been due to shrapnel—which is much less kindly. Even shrapnel wounds, particularly of the lateral regions of the abdomen, have recovered under careful expectant treatment—lowlier position, morphia and starvation—but, when this is considered, the fact remains that the fatality of gun-shot wounds of the abdomen coming under our notice has been distressing.

The question of operative interference is one regarding which the small number of our cases scarcely justifies us in expressing an opinion, but our experience as far as it goes has been unfortunate. Ten abdominal cases were dealt with in one of the operating theatres, in two of these the abdomen was opened for perforation of bowel, in the other five the procedure was confined to

cleansing of wound or the provision of drainage. Not one of the ten recovered. Those in which the abdomen was opened were carefully selected, both as being quite recently wounded and as offering fairly definite indications for exploring. In no case, I believe, was the procedure unduly prolonged, or such as to cause much shock or appreciably add to any already existing. These poor results must, we think, be ascribed partly to the sepsis already introduced, and partly to the existence of multiple lesions. However explained, they are such as to convince us that the patient's chances are not obviously improved by such procedures.

It seems to us that in all but exceptional cases, to be judged individually, the patient should be at once placed in bed in the Fowler position, withholding fluids by the mouth and keeping him quiet under morphia. Should signs of general peritonitis develop, the question of making an incision under local or general anæsthesia for suprapubic drainage may then be considered. A local peritonitis, e.g., over the ascending or descending colon, may be treated expectantly and any resulting abscess opened in due course.

As already stated, many of the cases received on board were already hopeless by reason of shock, peritonitis or internal hæmorrhage. We believe the best chance can be offered to these men by either sending them on board within a very few hours or retaining them in the field hospital for not less than forty-eight hours under morphia, until the damaged area has had time to be shut off.

Extra-peritoneal injuries need only be briefly mentioned. Good results have been obtained in deep wounds of the lateral and posterior walls involving viscera extra-peritoneally, especially the colon and rectum, with resulting fæcal fistula. Shrapnel wounds of the abdomen that recover have been mostly of this order. Two of these certainly had some degree of local peritonitis and were in a condition of some gravity for two or three days.

FRACTURE WOUNDS

BY SURGEON A. J. GILBERTSON, [illegible]

Treatment of this class of wound constitutes a large proportion of the work done in the operating theatre. On [illegible] trip was this only occasion on which we kept our cases long enough to be able to judge as to results of our treatment. Generally speaking, our aim first is to cleanse the skin thoroughly, make for thorough drainage where necessary with free counter-incision if required, profuse irrigation, reduction of deformity and finally immobilization of the limb in a form of splint which permits of ready access to the wounds; the ultimate end of such treatment is to hand over such fractures to the base hospital so free from complications that the surgeon into whose care they come may devote his attention to further treatment of the fractured bone if necessary.

All fractures of the femur, unless there is some strong contra-indication are dealt with under general anæsthetic. Their treatment varies considerably.

Class 1.—For example, quite a large proportion of cases require only cleansing of skin, application of antiseptic dressing, reduction of deformity and immobilization; such cases are those in which there is only a small wound of entry or of entry and exit, usually caused by rifle or machine gun bullet, more rarely shrapnel, with no great amount of laceration of tissue or comminution of bone as indicated by absence of swelling, tension or undue amount of hæmorrhage from the wound; given such a condition no further treatment than that mentioned is necessary.

Class 2.—However in a limb tense and swollen, it is advisable to make a free incision and counter-incision, to irrigate freely, washing out all blood clot, and to ensure good drainage by inserting a large drainage tube into the depth of the wound.

Class 3.—In dealing with cases in which there is a large amount of laceration of skin and underlying tissues, with comminution of bone, it is important that loose tags of tissue likely to slough should be cut away, that pieces of bone without attachments to periosteum be removed, and that free drainage be provided for by counter-incision and irrigation into every portion of wound.

In cleansing of skin our method has been the usual washing and shaving and the application of methylated spirit, followed by 1 in 40 carbolic over a large area of skin surrounding the wounds.

For irrigation, either solution of saline or hyd. perchlor. 1 in 5,000 are employed, using several pints to each case, the

[illegible] being dr[illegible] gauze [illegible] [illegible] [illegible]

SHOCK, HÆMORRHAGE AND THE SELECTION OF CASES FOR IMMEDIATE OPERATION

By Temporary Surgeon (John Lambert) R

(A) Shock

In some degree shock is present in the majority of patients on arrival on board. Naturally the degree of shock is dependent upon the nature of the injury, the temperament of the patient, and fatigue induced by loss of sleep, over exertion and often by protracted diarrhœa. Transport of the wounded undoubtedly plays an important part in the augmentation of existing shock. The patient wounded in the trench or on the battlefield is carried either by hand or in a stretcher down communication trenches, often with right angled bends or slopes to the first aid dressing station and thence to the casualty clearing station on the Beach by stretcher or ambulance wagon; from here he is sent in small boats to the hospital ship, being hoisted aboard on a cot carrier if unable to walk. All these changes naturally increase shock. The patients who show shock most are those with abdominal wounds and compound fractures of large bones.

On shore the injection of morphia in big doses, from ¼ gr. upwards, is of great assistance in minimizing shock, and where this has been the routine, as with the Australians and New Zealanders at Anzac, patients with multiple wounds and severe lacerations have come on board in good condition considering the nature and extent of their injuries. On board the usual treatment by warmth and stimulants and hot drinks is carried on. Cases still suffering from a severe degree of shock should not be operated upon until this has been successfully dealt with; cases left unoperated upon for six hours not unfrequently did very well on subsequent operation.

(B) Hæmorrhage

Very few cases necessitating immediate operation for hæmorrhage, apart from those with internal hæmorrhage, arrived on board, as most of the hæmorrhage cases had been efficiently dealt with on shore by the application of forceps or ligature of the vessel, or by light bandaging. Occasionally a puncture or tear of a large vessel—e.g., the femoral, posterior tibial, radial and ulnar—was found, and in these cases the bleeding had generally been inside the tissues of the limb, causing large extravasations of blood which stripped up the fascial and muscular planes, the entry or exit hole being

small enough [illegible] The danger in such cases [illegible] the limb by the swelling [illegible] coming on as a result of compression [illegible] Cases with intracranial hæmorrhage from a sinus or meningeal vessel were common, and these, owing to compression symptoms are among the more urgent cases for operation

The treatment of cases in which hæmorrhage has been severe naturally consists in the administration of saline solution *per rectum*, subcutaneously or intravenously

(C) The Selection of Cases for Immediate Operation

This is an important problem in the efficient management of a hospital ship Cases generally arrive in batches of from ten to fifty but they may keep coming on in successive batches so rapidly that accumulation of badly wounded patients quickly results It is necessary therefore to have some plan for sorting out such cases as require operation immediately, leaving the less badly wounded till the press of operation work is diminishing On several occasions in the ship it was found that three operating tables had to be kept constantly going for some fifteen to twenty hours before it could be said that all urgent cases had been dealt with

The relief of certain symptoms—e g cerebral compression, the checking of hæmorrhage and the prevention of sepsis—are the main essentials to be kept in mind in determining which cases require urgent operation From the record of operations performed in this ship during two months work it will be seen that the group of cases especially needing operation is that of compound comminuted fractures especially of the skull, the femur, the tibia, and the humerus. In the majority of these cases the entrance wound is small and clean, and the exit wound large, lacerated and full of bone splinters and fragments Hæmorrhage is often free from the torn muscular vessels The importance of removing loose fragments of bone clothing material and other foreign bodies from these cases with a view to the limitation of sepsis and the provision of adequate drainage as rapidly as possible need not be emphasized

An exception may be made to this rule in the exclusion of cases of compound fractures in which entrance and exit wounds are small and clean with no laceration, and in which the degree of swelling of the limb is not great Such cases may do well with simple dressing and splinting

As almost all cases of depressed or gutter fracture of the

skull show indications of cerebral compression, it is advisable to deal with these also as soon as possible Any case with severe swelling of a limb due to extravasation of blood should also be operated upon as soon as possible and the same procedure is naturally advisable with cases bleeding freely externally Wounds of joints where no fracture is perceptible are generally best left alone unless the entry or exit wound be large and lacerated

Abdominal wounds, by reason of the frequent multiplicity of lesions within the abdomen, are unfavourable as a rule a few may be chosen for operation but the majority, unless seen very soon after the infliction of the wound are best left alone Severely lacerated limbs may require immediate amputation unless too great a degree of shock is present, when the operation should be postponed for twelve to twenty four hours Any cases with laceration of tissues should be anæsthetized and have the wound cleaned up and foreign bodies removed by irrigation as soon as possible efficient drainage can then be provided a few sutures placed in it necessary, and the degree of sepsis will be lessened Wounds of the face jaw and palate all require operation urgently, and amply repay the time spent upon them in the prevention of deformity of the features Eyes which have been irreparably damaged also are best removed within the first twenty-four hours after the infliction of the wound Wounds of the lung are best treated by morphia and rest in a sitting posture operation is inadvisable

In regard to this problem of the selection of cases for operation the nature of the missile inflicting the wound is important Generally a rifle or maxim bullet will unless it strikes a bone leave small and clean entrance and exit holes, if however, it has been reversed, or has ricochetted off the ground, it may produce wounds of the explosive bullet type Shrapnel generally produces a larger wound with in-turned edges but if efficiently treated on the field with iodine and the first field dressing, a wound not infrequently heals under a scab, like that in wounds caused by rifle bullets suppuration is however common, as owing to its larger size irregularity of surface, and lower velocity, it has a tendency to push clothing before it and infect its course through the tissues Bomb and shell wounds are generally multiple and severe, laceration is common

In summary, it may therefore be said that the following groups of cases should receive immediate attention in the operating theatre —

(1) All fractures of the skull

(2) Compound [illegible] bones with no exception given al[illegible]

(3) All lacerated surface or tissue wounds

(4) Cases in which bleeding is still obviously going on whether externally or internally (except thoracic wounds)

(5) Eye injuries

(6) Gangrenous limbs

CLEANING AND DRAINING OF WOUNDS

By Surgeon W. C. MACARTNEY, R.N.V.R.

Since the War began a streaming spate of suggestion sensible and otherwise, as to the treatment of wounds has been emitted by the medical man of to-day. This is due to the novelty of the injuries in his work, and perhaps to a desire to appear original and be first on the stage with a new and diverting form of antiseptic. Far be it from me to decry any laudable work—and much that is good has been published—but at the same time the complexity of most of the suggestions at once negatives their employment.

Dealing as we were during each trip with large numbers of wounded without much time to waste if each case was to be dealt with so as to leave no cause for self reproach, the methods used, while thorough had withal to be simple and speedy. Out of all the clouds of scientific suggestion advice, and formulæ raw and fearsome, the experience of our recent trips has condensed my views and I now see clearly the guiding star of common sense.

Simple bullet wounds, if received shortly before arrival on board, may be considered aseptic, and need little more than the ordinary routine cleansing I adopted, namely cleaning with spirit soap, shaving if required, and spraying with iodine after cleaning the region of the wound with 1 in 40 carbolic, a cyanide gauze dressing is applied, and very seldom does any complication ensue.

Wounds with more destruction of tissue—and this includes all other than the simple gun shot wounds referred to—are treated in the same way provided there is nothing in the situation, shape, or contents of wound to interfere with drainage. If this is the case, counter openings must be made, or the wound enlarged till no doubt exists in the mind of the surgeon but that any discharge, serous or otherwise has a free way of escape. In this connexion tubes are better by far than packing. Filling up such a wound with antiseptic pastes just prevents drainage and leaves the patient worse off than before.

These larger injuries are as a rule, dealt with in the theatre, and before dressing are freely irrigated with some antiseptic lotion, such as 1 in 40 carbolic acid, and all foreign materials washed out They are much better seen under an anæsthetic, as very often the injury is more extensive than was at first apparent For all such wounds free drainage frequent dressing and copious irrigation are the great necessities and if these are supplied then the surgeon can sleep easy o nights knowing he has done as well as anyone else s best

In conclusion, I would pay tribute strongly to the vitality of the human tissue, and would deprecate any over keenness for surgical interference of the more radical type Nature if given a decent show and backed by attention to the simple rules of common sense, will save many a limb that an over eager scientific spirit would have lopped off

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WALKING CASES

By Surgeon C S Murison M B, R N V R

In dealing with this subject I may state that besides the cot cases brought off from the Beach, there were also a large number of walking cases In fact, I think the proportion of walking cases to cots was three to one, so that it becomes necessary in the interval between filling up with cot cases (seriously wounded) and sailing that these cases be passed on to base hospitals by means of some transport, usually trawlers All these walking cases have to be seen individually and treated, whether sick or wounded as there may be possibly some serious cases amongst them This is a point that cannot be too strongly emphasized, as quite possibly under the influence of the shock and abnormal conditions a man may walk on board with a penetrating wound of the brain and some depressed inner table I have myself seen two such cases In another there was a clean gun-shot wound about 1 in below the right elbow with little hæmorrhage, but I could feel no pulse in the radial artery, so I put him to one side for observation About an hour afterwards a severe hæmorrhage commenced through the entry wound, which was on the outer aspect of the arm On operating we found that both the radial and ulnar arteries had been cut through, they were tied and the case did very well

When all the cots have been filled the complement is made up with walking cases usually 350 to 400 and it is amongst these

[illegible] the clean wounds through soft tissue are [illegible] On [illegible] 1 [illegible] walking cases were seen and passed through the [illegible] and my which were serious were kept on board [illegible] number [illegible] all passed through in the space of fifteen hours [illegible] of that number we carried 377 to the base

For all practical purposes military surgery is the surgery of gun-shot wounds and those due to artillery projectiles Bayonet wounds are conspicuous by their absence personally I have only seen one caused by an enemy a bayonet and that was only a mere scratch Therefore I think the wounds seen may be classified as follows (1) Shrapnel which in my estimation was as high as 60 to 70 per cent of the cases seen, (2) bullet, (3) high explosives (4) bomb and hand grenades

Most of the wounded "walking" cases that came under my care were dressed with the first field dressing which is most excellent if the iodine and dressing are properly applied In passing I should like to remark on the excellent results I have seen and obtained by the use of iodine for wounds particularly through soft tissue In clean perforating wounds from rifle bullets really very little requires to be done after the first application of iodine and sterile gauze

The routine followed with those "walking" cases passing out of the ship, was simply to apply iodine and sterile dressings and not to interfere with the wound in any way Those cases that remained on board were, of course treated in a much more thorough manner First the wound was protected by a pad of sterile gauze then all blood and dirt were carefully scrubbed off with soap and water and the surrounding surface was shaved The pad was then removed and the wound was gently sponged with some weak antiseptic solution, usually 1 in 60 carbolic iodine was then sprayed over the part and sterile gauze and wool applied It was surprising in what a large percentage of cases the wounds healed without the slightest trouble I may also state that shrapnel through soft tissue where there was no laceration, healed almost as well as a gun shot wound

Lastly shell and bomb wounds through soft tissue were treated in exactly the same way except that the wound itself was gently irrigated with warm saline, nearly all such cases were quite clean and on the fair road to recovery when I last saw them Bullets were only removed in cases where they could be felt just under the skin, or where they were giving rise to pain and irritation by pressure as I consider that the less clean wounds are interfered with the better will be the ultimate result

THE ADMINISTRATION OF ANÆSTHETICS

BY [illegible] DALY, SURGEON [illegible] WYNDHAM [illegible]

Perhaps the first thing that strikes the anæsthetist is the ease with which he gets the patient past the first stage and the small amount of vomiting, taking into consideration the fact that the patients, with practically no exception, are not *prepared* and quite a large number say 30 per cent have their stomachs fairly full of food—food, too that is not of a light nature, but of the beans and bully beef variety This fact is, I think, certainly to be noted

The next point is that no reliance can be placed on the pupil dilatation or contraction, the only certain index to go by being the corneal upper eyelid reflex the pupil is almost invariably in a contracted state, owing to a dose of morphia being given with the field dressing I am glad to state we had no fatalities from anæsthetics on board during over two months of pretty heavy work of surgery of all kinds Personally I found careful attention to the respiration especially when it became shallow the most reliable guide as to whether the patient was becoming anæsthetic or not This the corneal upper eyelid reflex and noting the amount of morphia that had been given at the time of first dressing are in my opinion the three most important things to guide us in anæsthetics in war-time surgery

The favourite anæsthetic used was chloroform, then chloroform and ether in proportion of one to two and then ether as an also an Personally I did not use ether at all not, I think did any of my colleagues except in one or two cases by the open method At first, although the patients were got quickly under, one seemed to be using an undue amount of anæsthetic but this we soon found out to be on account of climatic heat and the use of electric fans in this theatre

In conclusion, I think that the chief reasons why anæsthetics were successful were the physical condition of the men—most of them having some twelve months training—and absence of alcohol most text-books give tobacco as a reason for anæsthetic difficulties but this did not seem to be the case, as smoking amongst all of them is quite heavy, especially cigarettes, and, indeed, a good proportion of them arrived on the table with a cigarette in their mouths

DENTAL SURGERY ON BOARD

By Dental Surgeon S. M. Carunia [illegible]

Among the large numbers of patients who have passed through the ship, since the commencement of our work as a hospital ship for the conveyance of wounded soldiers from the Dardanelles, very many of interest to the dental surgeon.

Compound fractures of the jaws were very numerous. This is not surprising in consideration of the exposure of the head to shrapnel and rifle fire which is the outcome of modern trench warfare. A marked feature of these wounds, in common with all lacerated wounds involving the mouth was their exceedingly foul state. This I consider to be largely due to the diseased condition of the teeth present, advanced stages of periodontal disease being not at all uncommonly associated with these cases.

The limited time the patients were on board before being discharged to the base hospitals rendered it obviously impossible to treat fractured jaws by means of the usual dental splints. Much relief however was afforded to the patients by frequent syringing, the use of antiseptic mouth washes, and in some the extraction of loose fragments of fractured teeth. The chief aim was to keep the mouth as clean as possible, and thereby render it more amenable to treatment by the dental surgeon at the base.

The state of the teeth is an exceedingly important factor in the physical fitness of a soldier, especially under such conditions as exist on the Peninsula, where the food is necessarily of a nature to tax the digestive organs of a man with the best dentition. The teeth of the majority of the men who passed through the ship were in a deplorable state. Many of those whom we carried to the base hospitals were invalided from the fighting line solely on account of defective teeth. The causal relationship between oral sepsis and general diseases is well known. I am convinced that many of the cases of gastro intestinal sickness which were so numerous among the troops were caused indirectly through septic absorption from bad teeth.

I trust that not the least of the many lessons to be learnt from this War will be the supreme importance of an efficient dental service.

NURSING

[illegible]

[illegible] day [illegible] is very difficult [illegible] in a hospital [illegible] forget what one [illegible] about the care and management [illegible] in one's training and remember instead that time is short and an enormous number of men are needing attention and just do the best one can for them under more or less trying circumstances. Our chief difficulties are the endless struggle to get them properly clean and decently clothed to endeavour to combat the acute collapse exhaustion and mental shock from which many of them are suffering when they reach us—especially those from Helles Beach who have often been lying out for twenty-four or thirty-six hours without food, exposed to the sun and tormented with flies—and the hopelessness of trying to make comfortable the men who are wounded in so many different places that they can find no easy position in which to rest. They all arrive on board in the clothes they have worn for many weeks or months, these are usually quite stiff with blood and sand, alive with vermin, and almost black with flies.

As soon as possible after they are put in their cots, everything is taken off or removed and the patient covered with either a blanket or sheet. Owing to the extensive staining through of the dressings it was soon found impossible to use bottom sheets or draw sheets for the cots and we now find the most practical and economical way is to cover the mattresses with long mackintoshes which can be fixed down firmly with safety pins on either side and when soiled can be easily scrubbed with soap and water, or sponged with a disinfectant, the patient being left quite dry and clean. This has been found particularly useful in nursing a great number of cases suffering with acute diarrhœa and many men with incontinence due to head or spinal injuries. The difficulty of making comfortable a man with multiple injuries is greatly lessened by the help of air pillows and rings, especially the latter, as they allow a man with a big drainage-tube through his thigh to lie on his back without pressure to the wound. One patient in the ship had ten separate wounds to be dressed, often they have as many as five or six and ingenious methods have to be found to fix them comfortably in their cots. The most distressing cases to nurse are those with head injuries or internal abdominal wounds but those that give the most work are the jaw cases because of the

difficulty of feeding them with tubes and keeping their mouths clean.

The patients are divided into two classes—cot cases and walking cases. When we have made up our numbers and are ready to leave for a base hospital, we generally have on board about 300 cot and 400 walking cases. The latter, commonly known as the "walkers," attend every morning at a large dressing station on the boat deck for treatment and at night they are each given a mattress, a pillow, and one or more blankets, and they sleep either on deck or below in the wards, just which pleases them. We see but little of them, as the cot cases take up so much of our time. Of these 168 are nursed in naval service cots slung three or four abreast on both sides of the saloon deck. As they almost touch each other, they are unable to swing too violently when the ship is rolling.

All cases requiring a great deal of treatment or observation are sent below to the wards, such as delirious patients, severe head cases and fractured legs, and all serious operation cases. Consequently the most cheerful nursing is done on deck, where the injuries are not so severe and where, under the influence of fresh air and cleanly surroundings, the men rapidly recover their good spirits and enjoy watching all that is going on around them.

The dressings are done under some difficulty, especially in rough weather, and the most fortunate people are those who are slightly built, and can easily squeeze between the cots. Light wooden dressing tables have been made by the carpenter's crew, easily carried along the gangway, but large enough to hold all that is necessary.

Work in the operation theatres is very different to anything we have ever seen before. There are two on the saloon deck, each with a Sister in charge, and the largest theatre contains two tables. The patients have had no previous preparation. They are carried straight on to the table, and their dirty, blood stained clothes have to be cut right off, and the skin scrubbed clean before any actual surgery can begin. These duties fall to the share of the theatre attendants, and the Sister is left to wash and sterilize her own instruments between cases, often to scrub down the table, and always do all the odd jobs.

Owing to the tremendous number of dressings done in the ship each day, we find that keeping up the stock is a very big item in our work. There is no time to cut up dressings when the ship is full of patients, but after landing them at a port on our return

[illegible] Peninsula we all work hard to make up and sterilize [illegible] ings for the next trip.

As [illegible] ters are limited only one night Sister can be on duty at a time and with so many cases in the ship her task is not particularly easy. However, on one point we are all agreed—that we have never before nursed men who have suffered so much and complained so little, nor seen patients show so much unselfishness towards each other and gratitude to those who are nursing them.

THE THERAPEUTICS OF EMETINE

[illegible] the principal [illegible] Brazil [illegible] most of the properties of ipecac [illegible] attributed. Its addition to our therapeutic resources [illegible] one feels probable that before long its use will be [illegible] beyond the limits of tropical practice.

Originally introduced as a specific in amœbic dysentery, it is already being used in a number of different pathological conditions.

The physiological actions of emetine are: (1) irritant, (2) emetic, (3) depressant. Ipecacuanha itself has antiseptic properties, but it is still [illegible] that these are due to some constituent other than emetine. The emesis is partly by gastric irritation and partly by direct action on the central nervous system. To obtain this latter effect [illegible] large doses are necessary. The clinical actions of emetine are: (1) antiseptic (especially amœbicidal); (2) hæmostatic.

Hæmostatic action is [illegible]. Laboratory investigations have failed to confirm [illegible] observations. It is even claimed that salts of emetine [illegible] in dilutions which they might presumably reach in the blood, fail to clot blood *in vitro*. Further in medicinal doses it has no effect on blood-pressure or blood-vessels of healthy people, and [illegible] to the clotting of blood. At present, therefore, its action is empirical. One is almost forced to fall back on the supposition that emetine is changed to some other substance within the body—a theory that reminds one of "the unknown toxin circulating in the blood," so often used to explain pathological difficulties.

Preparations and Methods of Administration.

The hydrochloride is the usual preparation and may be bought as a solid or in solution in ampoules. The latter are more convenient, more accurate and cleaner. The salt itself takes some little time to dissolve. The hydrobromide is also on the market.

The best method of administration is subcutaneously. In some people tender spots result lasting several days, but in my experience this is largely due to attendants and others making hypodermic injections into the skin instead of under it. I have seen the drug given intramuscularly, but the irritation is considerable. Oral

[illegible] stated [illegible] ill [illegible]

[illegible]

[illegible]

[illegible]

[illegible] Upper [illegible] and all but [illegible] 1911 [illegible] prevailing [illegible] that [illegible] H.M.S. [illegible] impeded [illegible] of [illegible] and [illegible] follows —

[illegible] the patients general condition after [illegible]

[illegible] which was invariably raised in degree [illegible]

The [illegible] very troublesome [illegible] symptom

[illegible] to stool

The [illegible] of the stools

The [illegible] of erythema [illegible] the stools which had been [illegible] in all cases

Diminution in numbers of the bacilli which [illegible] in all ordinary [illegible] tions

Rapid [illegible] of the motions to normal

Absence [illegible] complications

No relapses

In some cases emetine injections were combined with the oral administration of powdered ipecacuanha (ipecac gr xxx , emetine ½ gr daily), partly to conserve the stock of emetine and partly because one hoped to get a more continuous action by using a proportion of the crude vegetable It is best to give the ipecacuanha at night In all cases small doses of ipecacacuanha were given nightly during convalescence (10 to 15 gr) The bowel was flushed out each morning with a mild aperient saline

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Of other points in the treatment I need say nothing except that emetine considerably shortens the whole period, and therefore the time spent on milk diet I experienced no relapses and no ill effects from the use of the drug Used in conjunction with ipecacuanha six injections were required on an average

Other Forms of Dysentery

The opportunity occurred recently of trying emetine in two cases of non amœbic dysentery contracted in Egypt Both cases were characterized by rapid onset and by the prostration produced In both cases emetine cut short the disease The effect, however does not seem quite so marked in non amœbic dysentery, good results are achieved more slowly It is said that emetine is not much use in the severe bacterial dysentery of certain countries—e g, the Philippine Islands In the face of a very virulent infection miraculous results are hardly to be expected nor is a rapid cure to be expected in neglected dysentery of any sort with marked ulceration, &c I would venture to suggest that in many cases the dose used has been too small

Other Intestinal Conditions

The "diarrhœa so troublesome in the tropics and often due to climatic changes or to dietetic indiscretions may be checked by one or two injections (½ gr) Recently another type of case was experimented on successfully It was the case of a seaman invalided for severe gonorrhœal rheumatism who developed a bad attack of colitis while taking passage The patient came on board with a bedsore and in a bad way generally After a careful consideration of his case, it seemed that the attack was due to debility Treatment with salol, bismuth lead and opium, was tried without result The man s condition demanded prompt measures as he was very weak so a trial dose of emetine (gr ¼) was ordered The improvement which followed encouraged me to give I gr divided into three doses next day The reduction in temperature, the improved pulse and the amelioration of the diarrhœa which followed were most satisfactory

It has been my intention to use emetine in a case of typhoid fever but during the last twelve months such typhoids as have passed through my hands have been either convalescents or early cases in which a Widal reaction had not yet been done I should imagine emetine would be most useful towards the end of the second and during the third weeks of an ordinary case Already

favourable reports have been published of its value in hæmorrhage from the bowel in typhoid It is this hæmostatic property which may make emetine more widely used in medicine Its action in diarrhœa dysentery and allied conditions I have called 'antiseptic' for want of a better term Its hæmostatic value has been reported on in the following conditions —

Hæmoptysis in Phthisis—Several reports have reached medical papers of the success of emetine in this condition, used with or without morphia Since reading these reports I have not had a case of hæmoptysis Hitherto the usual treatment has been rest morphia and relief of cough and local pain All the hæmostatics and styptics of the pharmacopœia were useless

One writer reported lately that emetine (⅙ gr daily) had been uniformly successful in his cases, and that he found it good practice to continue treatment for five days after all trace of blood had disappeared from the sputum

The same writer reports good results in *gastric ulcer with hæmorrhage*, also in cases of *dysmenorrhœa* where no organic lesion could be discovered

Salvarsan soon found a field of usefulness beyond its original purpose — e g , in relapsing fever, tropical ulcer (a spirochætic disease) and in pernicious anæmia Salvarsan also failed where success was expected The same seems to be true of emetine it has no effect upon the course of cholera, for instance It would be interesting if medical officers of hospitals would publish any results they have had, positive or negative They are in a better position to follow their cases than medical officers elsewhere

In the meantime experimenting is necessary, for the therapeutics of emetine are not yet on a rational basis We do not know how it acts

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ON A LEECH REMOVED FROM THE NASAL CAVITY OF A SOLDIER FROM THE DARDANELLES

By SIDNEY F. HARMER, Sc.D., F.R.S.
Keeper of Zoology in the British Museum (Natural History)

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THE warmer countries round the Mediterranean are inhabited by a species of leech (*Limnatis nilotica*) which has the disagreeable habit of effecting an entrance into the nasal cavities, the pharynx, or the larynx of man, horses and other animals, and of producing results which are serious in their nature and may even be fatal. This danger has been known from time immemorial to residents in the Levantine countries, and is familiar to medical officers who have had experience there. The army of Napoleon, returning from Syria to Egypt, suffered severely from the ravages of this leech. It seems worth while to call attention to a case which proves that our own forces in the Gallipoli Peninsula have been exposed to the same danger, the existence of which may be unknown to many medical officers who have had no opportunities of making the acquaintance of this parasite.

On September 15, 1915, the British Museum (Natural History) received a large leech which had recently been removed from the nose of a soldier invalided home from the Dardanelles, and was then under treatment in the Military Hospital, Tooting, S.W. The specimen had been preserved in spirit, and it now measures 85 mm. (nearly 3½ in.) in length, its greatest thickness being 14 mm. (more than ½ in.), and its posterior sucker being 12 mm. in diameter. Dr. V. J. Woolley, who was in charge of the case, kindly supplied me with the following information:—

The patient, who was a private in the Army, was admitted to the Beach Hospital, Gallipoli, on August 21 for shrapnel wounds of the fingers. On August 23 he began to suffer from nose-bleeding, headache, and pains in the stomach, and was presumably diagnosed as a case of enteric fever. He was transferred to the hospital ship "Canada," where he became worse. On September 10 he arrived at the Military Hospital, Tooting, still suffering from nose-bleeding, headache and other symptoms. He was found to have contracted a double tertian malaria, which may have accounted for some of the symptoms. After he had been in the hospital three days, the leech was observed and extracted from

h[illegible] by the nurse and was seen to be full [illegible] The patient stated that all the water he had had was from wells on the lower levels and springs up above, and that it was clear and good and had been passed by the medical officers

The leech proved to be an example of *L. nilotica*, individuals of which reach about the same size as those of the medicinal leech (*Hirudo medicinalis*) From the medicinal leech *L. nilotica* can be distinguished by the occurrence of a characteristic longitudinal groove, which divides the upper lip and does not occur in the other species The history of this case is entirely in accordance with what is already known of the habits of this leech Although the facts are familiar to specialists, it cannot be supposed that they are known to all medical officers concerned in caring for the health of our forces A useful purpose may thus be served by re-stating some of the available information

An excellent summary of our knowledge of the subject may be found in Dr A E Shipley's recently published book 'The Minor Horrors of War (Smith, Elder and Co second edition 1915 pp 161 168) Other sources of information are a paper by the same author in the *British Medical Journal* December 5, 1914, p 962, R Blanchard, "Hirudineas de l'Italie continentale et insulaire (*Boll Mus Torino* 1894 vol ix, No 192 pp 45-48) and E W G Masterman Hirudinea as Human Parasites in Palestine (*Parasitology* 1908 vol i, pp 182-186) Blanchard gives references to contemporary accounts, by D J Larrey, of the troubles experienced by Napoleon's army According to these accounts the leech usually attaches itself near the posterior nares behind the soft palate, but sometimes penetrates to the nasal cavities, the œsophagus the epiglottis or the borders of the glottis Masterman gives a similar account, but in most of the cases examined by him the parasite had penetrated to the larynx He points out that the frequency of these laryngeal occurrences was probably due to the fact that the *fellahin* are unable to do anything to relieve such cases, though they are able to extract leeches which have taken up a more accessible position

L. nilotica is an inhabitant of fresh water, and it is extremely common in certain districts, in pools and wells It is said to be taken in when drinking, especially, as Masterman points out, at dusk or in the dark, and it is usually of small size when it becomes parasitic Once introduced, it takes up a position from which it does not readily allow itself to be dislodged Its bites produce copious bleeding, the extent of which may become very serious or

even fatal When it is attached in the neighbourhood of the glottis it may result in loss of voice and produce dangerous interference with the process of respiration, while its attachment to such sensitive regions as the epiglottis is naturally attended with great inconvenience to the patient When it is visible from the cavity of the mouth or nose it can be removed without great difficulty, but the treatment of laryngeal cases involves the use of a laryngoscope The method found most effectual for its removal by Masterman was to saturate a piece of cotton-wool with a 30 per cent solution of cocaine and to bring it into contact with the parasite which after a time relinquishes its hold and is coughed up This author recommends placing the patient on a bed with his head hanging over the edge so that the leech when dislodged may not pass down the trachea

The natives of countries infested with this parasite are well aware of the importance of taking precautions in drinking One such precaution commonly adopted is to take the water into the cupped hand and thus to make sure that it contains no leeches It has been suggested that there is Biblical authority for this custom as shown by the story of Gideon's selection of soldiers The method of straining drinking water through *fine* muslin is also adopted and boiling the water would no doubt be even more effectual It should be remembered that the leech is likely to be small and inconspicuous while it is leading a free existence Larrey states that it is ordinarily not thicker than a horse hair, although it may become as large as a medicinal leech when gorged with blood It is desirable to take similar precautions in allowing animals to drink, the extent of the danger being indicated by the fact that in certain districts almost every horse and mule has been observed to be suffering from a bleeding month due to attacks of this parasite

In conclusion I wish to express my thanks to those who have furnished me with valuable information on this subject, and particularly to Dr A E Shipley, F R S Master of Christ's College, Cambridge; to Sir A W May, K C B, Director General, Medical Department of the Navy, to Fleet Surgeon W L Martin and to my colleagues Mr H A Bayliss and Professor F Jeffrey Bell

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THE PREVALENCE OF TYPHOID AND THE RESULT OF ANTITYPHOID INOCULATIONS DURING THE FIRST YEAR OF THE WAR

By Fleet Surgeon J. W. Bassett Smith, C.B., R.N.

The period covered by this investigation is from October, 1914, to October, 1915, for which returns have been sent in. By the courtesy of Sir Almroth Wright, C.B., all the antityphoid vaccines have been supplied from the Inoculation Department of St. Mary's Hospital, the amount of which has been very considerable. The inoculations have been voluntarily undergone by a large percentage of the various Naval ratings in the Expeditionary Forces, of which the Royal Marines and Royal Naval Division have formed the greater part. Most of the men received the immunizing doses while undergoing their training at Walmer, Blandford, Crystal Palace, and Royal Marine Headquarters, &c., so that the necessary precautions could be taken to prevent any undue reactions.

An abstract of the returns is given in tabular form:—

	Inoculated	
	Once	Twice
Number of men inoculated, 23,448	1,869*	21,579
Royal Naval Division, Walmer, Crystal Palace, Blandford, &c.	530	8,737
Royal Marine Headquarters	13	6,412

* 339 were single full doses.

The reactions throughout have generally been very mild, rarely lasting more than forty-eight hours. The most common symptoms noted after the inoculations were shivers or slight rigors, vomiting, pyrexia of short duration, the temperature in a few cases running up to 103° F., but quickly falling, headache, dizziness, and pains in the joints. Syncopal attacks occurred in a small percentage, most often in very young officers and nursing sisters, coming on very soon after the inoculation and not dependent upon the material injected. In one case anæsthesia of the right leg and foot was complained of seven hours after the inoculation and lasted for twelve hours. There was not a single case of a local abscess at the site of the injection, and in very few cases was it necessary to place the patient on the sick list. However, it is always advisable to give the inoculations in the late afternoon, and for the patient to spend as much as possible of the first twenty-four hours at rest, with light diet and alcohol prohibited. For the site of the inoculations I prefer the subclavicular region, when great numbers of

men have to be done the arm is more convenient but I think the reactions are often more severe.

The duration of immunity which is given by the vaccine can rarely be found to last longer than two years and with English preparations it is generally believed to be about eighteen months. We note that the agglutination curve, which is an "imperfect index of the protective substances in the blood, has usually returned to about the normal line within twelve months. I have a record of an officer in the Boer War, who contracted the fever a second time after an eighteen months interval, which is an indication that as the active immunity produced by the disease may be lost in so short a time, it is unlikely that the artificial immunity given by vaccines should last longer, and often it is much less.

Cases of Enteric during the Year

These must be arranged into two groups, first those occurring in the general Naval service, and almost entirely among non-inoculated men; and, secondly, those which were recorded from the Expeditionary Forces employed in the Dardanelles area. The results are shown in the following tables:—

TABLE I.—General Service

134 cases			17 deaths		
Not inoculated	Inoculated		Inoculated		Not inoculated
	Once	Twice	Once	Twice	
132	0	2	1	0	16

TABLE II.—Expeditionary Force

236 cases clinically diagnosed			9 deaths		
Not inoculated	Inoculated		Inoculated		Not inoculated
	Once	Twice	Once	Twice	
65	41	132	—	2	6 + 1 (?)

In a number of these latter cases (142) no laboratory diagnosis is recorded; in 24 a definite diagnosis of typhoid, and in 72 a

paratyphoid infection was proved. In one case, doubtfully inoculated, the patient died from pulmonary complications and *Bacillus paratyphosus* B was isolated from the spleen by Fleet Surgeon Whiteside. An interesting case is recorded by Fleet Surgeon M. Rodd of a man with clinical symptoms of typhoid in whom the diagnosis had been confirmed by a Widal test previously and who received one inoculation of the vaccine. Though the man died, the vaccine did not appear to have produced any ill effect. Had the diagnosis not been confirmed by the Widal test before inoculation, the case might have been attributed to the vaccine.

In a number of cases the cause of the infection was carefully investigated by cultural and agglutination methods. From the figures obtained by Fleet Surgeon Whiteside at the Royal Naval Hospital, Plymouth, and by myself at Greenwich, the following table has been drawn up, which probably gives a fairly accurate percentage of all the cases —

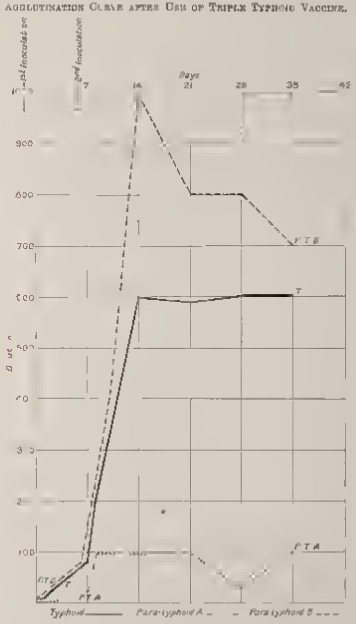
Typhoid	Paratyphoid A	Paratyphoid B	Indefinite
11 per cent.	30 per cent.	26 per cent.	33 per cent.

The "indefinite" includes all those who have been inoculated against typhoid and who gave an agglutination reaction for that disease in low dilutions only and no reactions for other organisms. Some of these cases were probably coli infections, others amœbic dysentery. Mixed infections of typhoid, paratyphoid A, paratyphoid B or both were occasionally observed. In one case at Greenwich which was entered as an enteric *B. dysenteriæ* (Shiga) was isolated from the fæces and several chronic dysenteries proved to be paratyphoid infections.

It had been recognized that as paratyphoid infections are so common in the Dardanelles area, if an immunity can be conferred by means of vaccines these should be used. In the great majority of cases full immunizing doses of typhoid vaccine have first been given, for it is essential that the protection obtained by this means should not be reduced for the most important and fatal disease; then a third, or if possible a fourth, inoculation with the paratyphoid vaccine was given. This is the method that has been generally followed in the standing camps, and about 2,000 men have been so inoculated. The paratyphoid vaccine has been a polyvalent one made from Gallipoli derived organisms (five strains of B and two of A). These were grown in broth for forty-eight hours, standardized, heated to 55° C. for half an hour, and 0·3 per cent. lysol added, 250 million of each being given for the first dose, and double the quantity for the second inoculation. If only one dose

could be given the larger was used in no case have the reactions produced been severe. A rabbit treated with this vaccine gave a good agglutination response. Recently, owing to the urgency and

AGGLUTINATION CURVE AFTER USE OF TRIPLE TYPHOID VACCINE.



the difficulty of giving so many inoculations, a triple vaccine of typhoid, paratyphoid A and paratyphoid B has been used both at Malta and at Greenwich. The first dose in the vaccine made at

Greenwich contains 500 million *typhoid* and 250 million each of *paratyphosus* A and *paratyphosus* B, and in eight days a second dose of double this quantity is given With officers treated by myself and reports on men who have been inoculated with this vaccine it appears that in no case has the reaction been more severe than after using the simple typhoid vaccine and immunization, as judged by the agglutination tests is quite good for all three organisms A triple vaccine has been used at Malta by Surgeon Lynch since August 15 1915, the first dose containing 500 million *typhoid* and 150 million each of *paratyphosus* A and *paratyphosus* B, the second dose 100 million typhoid and 300 million each of *paratyphosus* A and *paratyphosus* B It has been observed that different strains of paratyphoids have very varying agglutinable values, and that paratyphoid A is the most irregular also that repeated subcultures in broth greatly increases their motility We have not yet any evidence as to the durability of the immunity we produced as compared with a mono vaccine, but a volunteer in the laboratory who had not been previously inoculated has received two injections of this mixed vaccine and his agglutination curve is being recorded The reaction for typhoid and paratyphoid B in this case is higher than for paratyphoid A, and is also best maintained

The utilization of the triple vaccine has much to recommend it (1) The time saved is considerable, (2) the reactions are not severe (3) immunization appears to be good, (4) the full dose of typhoid is given The practical experience of the Japanese and of Castellani shows that these mixed vaccines have been used extensively with satisfactory results

ADDENDUM

There were 96 further cases of enteric at Malta Hospital during the period of this return of which 16 were typhoid 1 paratyphoid A, 65 paratyphoid B and 14 were undetermined Of the 16 typhoid cases 12 were uninoculated and 1 had been inoculated twice, there were 6 deaths from typhoid 5 of whom had received no protective inoculations

ERRATUM

Fleet Surgeon Bassett Smith desires to draw attention to an error which unfortunately appeared in his article, 'The Possible Recurrence of Mediterranean or Undulant Fever and its Treatment by Sensitized Vaccines' JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE October 1915, in chart 4 p 439 the thin line curve should represent the paramelitensis agglutination and the dotted line the melitensis agglutination *not* vice versa as shown in the chart

MALARIA IN H M SHIPS "HERMIONE" AND "BRISTOL," AT TAMPICO WITH SPECIAL REFERENCE TO METHODS OF SCREENING

By Staff Surgeon LESLIE M MORRIS RN

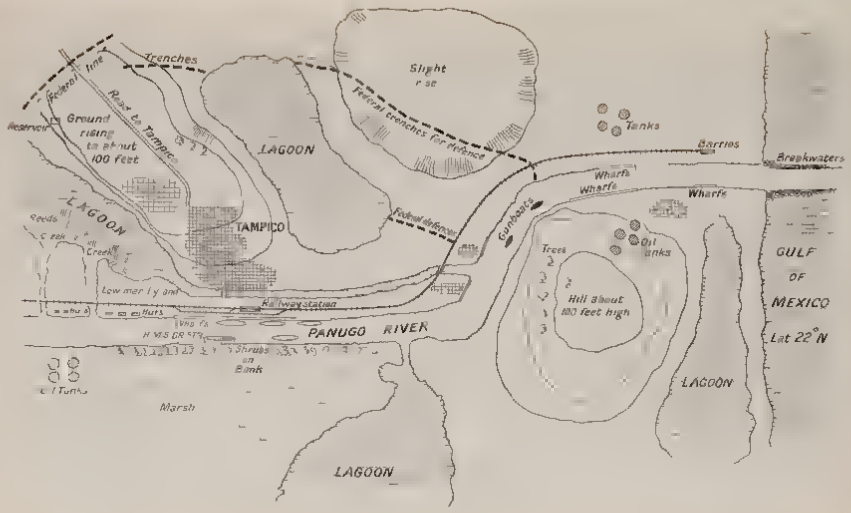
On December 13, 1913, the "Hermione" arrived at Tampico (Mexico) in order to give protection to British interests and refugees during the time when the Federal forces of General Huerta were defending the town against the attacks of the rebel forces of General Carranza

On arrival at the entrance to the Panuco River the flag of the late Rear-Admiral Sir Christopher Cradock was transferred from the "Suffolk" to the "Hermione," and we then proceeded up the Panuco River to Tampico, a distance of six miles Here it was found that there had been sharp fighting for the previous three days, and that the Federal forces had successfully repulsed the rebel attacks, chiefly by the aid of the two gunboats "Bravo" and "Zaragoza," which could shell the rebels from the river protecting Tampico from the south

The surroundings of Tampico are flat and swampy presenting the appearance of a typical malarial district Large lagoons are situated north and south of the town Tampico is an important commercial port and the centre of the oil export trade. The town has a mixed population of 23,000, Americans, British, Germans, Dutch, and Spanish are all represented in the oil industry

The native part of the town is on a lower level, and its condition is indescribably primitive Decaying animal and vegetable matter is scattered everywhere dead horses lying in a state of putrefaction preyed on by innumerable buzzards sows and their litters nosing here and there for sustenance from the heaps of refuse, dogs dragging filth from the heaps and hungrily devouring it At each incursion of one of these harpies on an offal heap, a swarm of flies would rise buzzing into the fœtid atmosphere, and within a few yards of these filthy spots the native population of Tampico live serenely

Under those conditions it is no wonder that small pox is endemic the native population being mostly unvaccinated, or that typhoid is always present, cases of dysentery also were occurring on account of the rebels having cut the water supply, the only supply available being pumped from a shallow lagoon near the town



Rough sketch of Tampico.

The Hermione anchored opposite the town, within fifty yards of the river bank where the river is 400 yards wide. The bank was strengthened against erosion by wooden piles, behind lay a belt of shrub and beyond this low-lying marshes extending several miles.

This part of the coast of Mexico is notorious for widely spread and severe malarial infection. The seasonal prevalence is from May to January. The months of February, March and April are moderately healthy. The infection is tertian and subtertian, the latter malignant form being unfortunately extremely common. No attempt has been made to deal with the shallow lagoons and swamps which surround the town; these contain abundant vegetable matter and afford ideal mosquito breeding haunts. The sick-rate from malaria amongst the white employees of the various oil companies is very high. Perhaps these unhealthy conditions may improve when the trouble in Mexico finally ceases, and when European and American influences are more prominent in this neglected country.

The first night in the Panuco River will always remain vividly impressed on our minds. The nauseous smell of the oily river combined with the swarms of mosquitoes (*Anopheles*) which infested the ship created conditions for which we were totally unprepared. It was at once realized that it would be necessary to screen the ship without delay.

The following day I went ashore with the Paymaster and purchased sufficient quantities of mosquito proof brass wire gauze netting as used in Panama, and also a quantity of muslin as is generally used for mosquito nets. The wire and muslin were used as follows:—

Wooden frames for the gauze were made for all gun ports and skylights; these were made mosquito proof without difficulty. Wooden frames with doors were made to cover all the hatches; the doors were made to fall to by attached weights and so were kept closed automatically. All scuttles were covered by muslin, either fixed by glue or by fastening the muslin over the base of a well-fitting wind scoop; the latter measure was very efficacious, especially when the muslin was afterwards replaced by wire gauze to ensure better ventilation. The gauze can readily be fixed to the wind scoop by perforations at the inboard part. The real difficulty arose when the large engine-room exhaust hatches were attempted and also the doors leading on to the upper deck from the stokehold escapes and exhausts. These doors have to be kept closed after

sun-at and large fr[illegible] w[illegible] made for the [illegible]
All the small supply and [illegible] nist openings such as [illegible]
can be readily secured by muslin or gauze tied over them It is
often found that the internal openings of ventilating supply pipes
are more readily made mosquito proof than the larger openings on
deck. The supply openings to the fans were covered by a screen
on a wooden frame these screens were found to be covered with
mosquitoes in the morning

In order to make a success of these protective measures, the
intelligent co operation of the whole ship s company is essential
This can be obtained by instruction especially impressing upon
them how necessary these steps are to prevent malaria

A daily inspection of all the screens is necessary to repair any
damage and again to see that all screens are in position by sunset
By these means the ship was made habitable at night but if there
is carelessness or indifference the results are soon obvious.

All officers in cabins were instructed to use mosquito nets.
Nets were purchased for the protection of the sick as necessary
All men had to sleep below and were instructed to wear boots
after evening quarters with their trousers tucked inside their socks
Quinine was issued daily in doses of 5 gr to the whole ship s
company from the evening of arrival, and continued until the
end of January when the ship had a short stay at Vera Cruz

Life on board under these conditions is of course far from
pleasant, but if men understand the necessity and importance
of these measures a great deal has been gained

During the day mosquitoes were sought for and killed The
ship was kept as dry as possible any sources of breeding-places
such as 'save alls were examined and kept dry The screening
necessarily interferes with ventilation to a certain degree The
less muslin used the better, as the open mesh muslin is expensive
and hard to procure it also perishes after much rain Ordinary
muslin interferes with ventilation to a marked degree

The mosquitoes present were the large black *Anopheles maculipennis* and a few varieties of culex, but very few stegomyia were
discovered in the various specimens examined

The outbreak of malaria in the 'Hermione' occurred in two
distinct and separate phases The first occurrence was due to
infection received from the day of arrival up to the end of January
The second outbreak was due to a fresh infection, commencing
after the first rains in May The period of February March and
April was practically free from fresh infection

The first series of cases commenced on the twelfth day after arrival in the river (Christmas Day) and continued daily until the end of January, by which time 51 cases had been under treatment. The second outbreak in May accounted for 55 more cases, making a total of 106 cases in a ship's company of 625.

The type of infection was tertian benign and subtertian or malignant in a ratio of 4 to 1 respectively. The onset was sudden, characterized by the following typical case: A man would report himself at 5 p.m. complaining of severe headache, shivering, and pains in the back. The temperature would be from 101° to 103° F., rising later from 103° to 105° F. Gastro-intestinal symptoms were common, but spleen pain was not frequent. In the whole series of cases no severe symptoms nor complications were noted. There was, however, one case of hyperpyrexia with delirium, and one case of coma which needed energetic treatment by repeated intramuscular injections of quinine bihydrochloride in doses of 1 grm. The symptoms at the onset and during the ensuing illness were markedly modified by the previous regular prophylactic doses of quinine every evening.

The tertian benign cases rapidly improved after an illness lasting from two to four days. Many charts were taken showing the true tertian periodicity of fever.

In the subtertian cases, however the symptoms would be more severe. The fever, of an irregular high intermittent type, would last from five to seven days; recovery would be delayed and after-effects such as anæmia and loss of weight would occur, with a marked tendency to relapses.

Blood films were taken of all fresh cases and showed in the majority of cases the parasites of the various types of malaria in all stages of development. Many films of undoubted malaria were negative: this is explained by the previous taking of quinine and by the fact that in subtertian malaria the parasite is only found in the peripheral blood in its early stages of development, when it was often seen as a double infection of the not enlarged corpuscle, the later stages of development and sporulation taking place in the spleen, brain, and internal organs. In the films negative to the parasite, however, other evidence of malaria was usually found, such as pigmented leucocytes and a leucocytosis of the large mononuclears. The Leishman stain gave excellent results.

The satisfactory treatment of a large number of cases of malaria on board a light cruiser presents many difficulties, as the proper

screening of the infected men is essential when [illegible] pintoos are infesting the ship The fore lower me[illegible] invented for use by fitting extra screens to all hatches [illegible] openings leading to it from other parts of the ship A number of camp beds, which had been purchased for the use of the refugees, were utilized, and these were screened by mosquito nets Isolation of the sick was thus satisfactorily obtained, and this mess deck was in continual use until the middle of February

Quinine treatment was conducted as follows At the onset a dose of 15 gr was given by the mouth with 5 gr of calomel For the next five days 10 gr three times a day in solution followed by 10 gr twice a day for another five days. Then followed a course of 5 gr three times a day for three weeks, combined with Easton's syrup and other tonics if there were anæmia and loss of weight Quinine was continued in a weekly dose of 10 gr every Sunday for three months If any case did not react satisfactorily or if gastro-intestinal symptoms were troublesome, or if there were pyrexia over 103° F, quinine was given by intra-muscular injections in doses of 1 gm of the bihydrochloride in 1 c c of sterile water in ampoules

This method of treatment was markedly successful and was always used as a resource to control the quinine treatment by the mouth Injections of quinine into the buttock are painless and easily administered Supplies of the ampoules were purchased locally where they were in great demand At this time I had the pleasure of meeting the U S Hospital Ship "Solace" which arrived at Tampico to wait on the U S ships I had the benefit of the experience gained by several American naval surgeons, who were familiar with the types of malaria in this part of Mexico, and was able to examine their methods of screening ships and other prophylactic measures adopted I shall always have pleasant recollections of the kindness and courtesy of Medical Director von Wedekind, U S N, and the staff of the "Solace" Three acute cases were removed to the "Solace," namely, one of enteric one case of dysentery with liver abscess, and one case of appendical abscess after operation and drainage for convalescent treatment Other ships, visited at Tampico, were the German cruisers "Dresden" and "Bremen," the U S ships "Tacoma" and "Des Moines" and the Dutch cruiser "Kortenaer" All these ships experienced similar outbreaks of malaria

During April and the first half of May there was continual fighting for the possession of Tampico As many British women

and children as possible were taken on board and accommodated in the ship while other ships, notably s s 'Antillon' were detained and chartered for the accommodation of the remainder Tampico was evacuated by the Federal forces on May 13, and 3,000 rebels entered the town This event was followed by a period of some semblance of law and order, which was welcomed by the British population These facts are mentioned to show that the presence of the ship was necessary and the 'Hermione' was our only ship on the station possessing the suitable draught During the period January to June no shore leave could be given at Tampico to the ship's company

The second outbreak of malaria commenced suddenly early in May after the first rains and continued until the ship was relieved at Tampico on June 9, by the 'Bristol' This outbreak accounted for fifty-five cases of the same type as previously The "Hermione" then sailed for England

On June 9 I joined the "Bristol" and found that, as the result of the experiences in the 'Hermione', special mosquito-proof copper wire gauze fittings had been made and adapted in Portsmouth Dockyard, these were a great improvement The scuttles were protected by gauze on wooden frames with brass clips, so that they could be retained in position by the ordinary scuttle screws Special doors had been fitted to protect the officers' quarters and upper deck galleys Frames were supplied for all hatches, skylights, ventilating supply inlets, &c A quantity of wire gauze and wide mesh muslin had been supplied for protecting all the mushroom tops and smaller openings The framed doors over the main hatches were made horizontally and opened upwards —they were fitted with strong battens and handles The woodwork of these frames should be reduced as much as is possible to be compatible with the general weight of the door The same difficulty was experienced in dealing with the numerous doors opening on to the upper deck and communicating with the stokeholds, workshops, &c Such doors must be closed and kept closed after sunset to avoid infection of these parts of the ship and, in turn, of the mess decks

The 'Bristol' had arrived at Tampico with a ship's company, the majority of whom were young men straight out from England, and at a time when malaria was commencing to appear with the hot weather The ship went up the river to Tampico on June 10, and was moored in the same locality as the 'Hermione'

The evening dose of quinine was increased to 10 gr and 5 gr

[illegible] All men were [illegible] necks and [illegible] This precaution was [illegible] to be absolutely necessary considering the swarms of mosquitoes which infested the ship in these tropical nights [illegible] keepers and signalmen on deck were supplied with helmets [illegible] veils, these men also wore gloves and had their [illegible] protected No lights were permitted on the upper deck at night

In spite of these precautions the cases of malaria commenced on the thirteenth day after arrival The first men infected were the ward room domestics and cooks from the upper deck galleys These were followed by the younger members of the ship's company, from the after-part of the ship In all ninety six cases were treated between this time and the end of July out of a ship's company of 375 The cases though numerous were of the same modified type as in the 'Hermione there were no serious cases nor complications The greatest number under treatment on one particular day was sixty nine On June 29 the Bristol left Tampico for Vera Cruz after a stay of nineteen days the occurrence of fresh cases decreased rapidly after the ship had been away for two weeks

Vera Cruz is free from mosquito infection and so this outbreak could be treated by keeping the men in their usual sleeping billets Ships of the "Bristol class are ill adapted for dealing with large numbers and some cases were transferred to the 'Suffolk at Vera Cruz

All cases recovered satisfactorily and by August 4, when war was declared the ship was at last free of malaria, all men having returned to duty

Relapses occurred subsequently in September, and were due to the hard work entailed by constant steaming and coaling off the coast of Brazil in extreme heat These relapses were of mild degree and short duration, and readily yielded to sufficient doses of quinine Another series of relapses occurred when the ship was employed for four months in the Magellan Straits searching for the 'Dresden which had escaped from the battle off the Falklands These were due to extremes of temperature and the cold weather experienced The relapses ceased when the ship left that area and proceeded to Gibraltar, in May, 1915

Conclusions

As the result of experience gained in these two ships employed in a highly malarial district, I conclude that the measures taken to

screen the ships effectually prevented a very extensive outbreak of malaria

The efficient screening of a ship presents difficulties which may be overcome with the intelligent help of all officers and men, and will only be effectual if this can be obtained

Ships proceeding to known malarial localities should be previously fitted with the gauze-covered doors and frames for hatches, scuttles and air supply inlets The remainder can be quickly improvised if reserve supplies of gauze and open mesh muslin are available Lectures are necessary to gain the help of the ship's company

The taking of quinine regularly had a marked beneficial effect in modifying the severity of the symptoms and the length of the illness

Quinine in prophylaxis must be given in large doses to be effective on the coast of Mexico The method of giving quinine varied in the different ships In the German ships 1 grm was given every fourth day this plan was followed in the Dutch ship and also in some of the U S ships Another good plan was to give 10 gr for three consecutive evenings followed by two days without quinine

The younger members of the ship's company and the men employed on the upper deck were mostly affected

The chart house should have a screened door In one American cruiser I saw a large mosquito proof cage placed over the main mess deck hatch so that men could come up to smoke and play cards The quartermaster also had his own protected apartment

Only one officer of the two ships contracted malaria This satisfactory immunity I attribute to the fact that nets were carefully used and quinine taken regularly I also consider that a moderate amount of alcohol if taken after sunset, is beneficial in aiding to ward off malarial infection and that a good plan would be to issue the rum ration after evening quarters in malarial localities when men are taking quinine

As conditions of life on board in malarial districts are irksome and unpleasant it is necessary to instruct the ship's company as to the necessity of carrying out the measures recommended in order to prevent them contracting what may possibly develop into a long and debilitating disease

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LOCAL ANÆSTHESIA

[illegible] GORDON C. WILLIAMS, [illegible]
[illegible] *the Royal* [illegible] *at Haslar*

As the use of local anæsthesia as a substitute for general anæsthesia are not so widely appreciated as they should be perhaps a few notes on the employment of this safe and satisfactory method for small and frequently occurring operations as well as for those of a more serious nature, may not be out of place

To naval surgeons who have to be prepared to face every emergency, often single handed the question of having to administer a general anæsthetic is often a very serious one and one likely to restrict or even prevent the carrying out of much useful surgical work

Gas, which in civil practice proves so useful for many operations, is not available in ships so that resort has to be made to chloroform or ether, with their attendant dangers and difficulties It is in such cases that novocain proves such a valuable substitute Among the many advantages which may be claimed for it are safety, ease of administration wide range of use, portability and lastly, economy

A good syringe and needles are the only instruments necessary The syringe should be of 10 c c capacity, capable of being boiled and should be strongly made as considerable pressure is needed when infiltrating dense tissues I have found that the 10 c c Record syringe among others, satisfactorily fulfils these requirements The needles should be of different sizes varying in length and calibre from hypodermics to those of from 2½ to 3 in length The needles usually employed are of steel and these answer their purpose very well provided one bears in mind their liability to rust inside the lumen and consequently to snap off if slightly bent Nickel needles do not rust, but are more expensive and somewhat less their sharpness In an emergency an ordinary hypodermic syringe and needle can be used and with a little ingenuity a large number of operations carried out with its aid

The drug that has proved most satisfactory is novocain Cocaine should not be injected on account of its highly dangerous toxic qualities The solution which is best suited for general work is novocain of 2 per cent strength This solution is not affected

[illegible] kept for long [illegible] its properties [illegible] in ships the handiest manner in which the [illegible] in the form of tablets of known [illegible] I am indebted [illegible] Hooper Superintending [illegible] Haslar [illegible] suggestion that soluble pellets [illegible] should be prepared and carried in tubes [illegible] the solution of novocain of 2 per cent strength [illegible] the tablets is dissolved in 8 oz of hot distilled water [illegible] In this way a sufficient quantity can be [illegible] waste prevented, and a sterile solution [illegible] establishments where it is frequently used it is more [illegible] have larger quantities ready made up At Haslar [illegible] of the sterilized solution are prepared at a time, [illegible] this stock the amount required for the operation is [illegible]

[illegible] strength 1 in 1 000 may be added in the proportion [illegible] drops to 100 c c and by its vaso-constrictor effect lessens [illegible] hemorrhage from the wound and greatly prolongs the duration [illegible] anæsthesia The analgesia however, comes on more slowly, [illegible] a wait of from ten to fifteen minutes before the operation [illegible] commenced The effect once established lasts well up [illegible] and occasionally longer For most of the operations [illegible] here it is not necessary to add the adrenalin, as time is saved by being able to make the first incision immediately the injections are finished, and the analgesia is sustained over an hour without it

The amount of novocain 2 per cent solution which may be used with safety and without fear of toxic results is 100 c c It is scarcely necessary to state that the syringe should be boiled each time before use, and the needles placed in spirit for some minutes beforehand Spirit either on the syringe or needles should be rinsed off with distilled water before the injections are made

There are two distinct methods of employing this solution for producing local anæsthesia firstly by infiltration, and secondly, by injecting into or around the nerve or nerves supplying the part operated upon

The first method of local infiltration into the area of the operation is of great simplicity and is the one chiefly dealt with here The second method is known as conduction or regional anæsthesia, and is of special value in inflammatory conditions, as the nerves can be blocked at a distance from the infected area, thus avoiding the risk of spreading infection by direct injections

I would [illegible] of infiltrating [illegible] inflamed [illegible] infiltration and [illegible] are often [illegible]

A few [illegible] may be of assistance before describing the details necessary for producing anæsthesia in actual operations

When infiltrating into a very nervous subject or through specially sensitive areas a small wheal can be raised by injecting a small amount of the solution into the skin through a hypodermic needle One can then thrust the stouter needle through the wheal under the skin and carry out the infiltration without causing more pain than the prick of the first small needle This however is seldom necessary One generally picks up a fold of the skin with the left hand and pushes the needle through with a deliberate, even pressure, which is less painful than a sudden jerk at the same time pressing down the plunger of the syringe The subsequent injections are made through the infiltrated tissue, and so the insertion of the needle again does not cause further pain By disconnecting the needle from the syringe one is able to judge the position of the point with greater accuracy This will prove of assistance when infiltrating a special part, the syringe then being attached to make the injection

With regard to the patient no special preparations are required he can have his meals both before and after as usual, and he will not want the attention and watching that are necessary after a general anæsthetic During the operation he can be placed in the position most convenient for the surgeon It is of the utmost importance that his confidence should be gained especially if he is nervous It is as well to explain to him shortly what is going to be done, and let him understand that although it will not cause him pain, he will probably feel that something is being done and must be prepared for some discomfort It is a great mistake to keep asking him if he feels it as in the first place he is bound to feel a certain amount of pressure and manipulations at the site of operation, and in the second place it is of the greatest importance not to suggest to him that he is feeling or about to feel pain Attempt to fix his attention on anything rather than the operation He will let it be known soon enough if he is being hurt A small dose of morphia, varying from $\frac{1}{6}$ to $\frac{1}{4}$ gr , according to the type of patient, given a quarter of an hour beforehand will allay his apprehension and keep him comfortable during the operation

As to the operator himself, he must remember that the patient is not unconscious, and limit his remarks in consequence, and also

avoid [illegible] analgesic [illegible]

It would [illegible] details of the [illegible] in every operation so that a few typical examples only will be given to illustrate its uses

As an illustration of the simple infiltration, the removal of varicose veins will serve as an excellent example The veins having been marked out beforehand with a blue pencil, the leg is prepared in the usual way, either by the iodine spray or the application of some other antiseptic The skin at one end of the proposed incision is pinched up by the left hand, and a fine needle thrust through into the loose subcutaneous tissue Sufficient solution is injected to raise up the skin distinctly along the track of the needle, which is gently pushed along the line of the incision In a long incision the needle is withdrawn and reinserted at the limit of the first injection until the whole length or area previously marked out is infiltrated The great secret is to inject enough No harm is done by using a large quantity As much as 10 c c to 6 in of incision will do no damage and will ensure perfect freedom from pain The incision can be made immediately after the injections, though waiting a few minutes ensures a wider field of analgesia as the solution spreads from the sites of injection The fact that the varicose veins are often in bunches, scattered about the leg, is no contra indication for using local anæsthesia as the separate areas can each be infiltrated

Areas infiltrated in this manner remain analgesic for from forty minutes to an hour and occasionally longer, and allow ample time for carrying out the operation

By infiltrating locally round the site of operation a large number of conditions can be dealt with To instance a few such cases, small tumours, lipomata adenomata and sebaceous cysts can be successfully removed, skin grafts taken and scars excised This method is not limited to rendering the skin alone insensitive, but deeper structures can be made analgesic by deep injections In this way foreign bodies, bullets splinters, &c, can be removed not only from the skin but also when they are imbedded deeply in the muscles

One may find some difficulty in rendering the deep surface of a cyst or of a prepatellar bursa completely painless by injections from the surface, although this can be done by practice There is no objection to giving a further injection during the operation

in such [illegible] be rendered [illegible] the operation [illegible] the area of [illegible] the solution into [illegible] help in [illegible]

At the present [illegible] when one has to deal with a large number of septic wounds, local infiltration is of special value in ligaturing vessels to arrest both primary and secondary hæmorrhage

Turning to the conduction method this is of great importance for operations upon the fingers and toes, and possesses the additional advantage that it can be used in inflammatory conditions such as whitlows provided the proximal ends of the digits are free from infection

To render a finger analgesic the needle is inserted through the skin on the dorsum just below the knuckle in the middle line The solution is injected round the root of the finger, paying special attention to each side where the digital nerves run down This injection can be done through the one puncture The needle is now withdrawn and inserted through the web where it is already insensitive and the circle completed across the palmar aspect of the finger Sufficient solution should be injected to render the skin tense about 10 c c will be the amount required

In this, as in all forms of conduction anæsthesia the effect does not come on immediately but in from five to six minutes the finger will become analgesic the analgesia spreading from the site of injection to the finger-tip

The complete analgesia of the finger so produced is most striking Any operation upon the finger such as amputation scraping the phalanges in bad whitlows removing the nail trimming up torn stumps can be performed without the patient knowing that his finger is being touched Amputation through the metacarpo-phalangeal joint can be performed by ringing round the base of the finger and carrying the infiltration higher up over the dorsum of the hand Toes can be dealt with in a similar manner and ingrowing toe nails removed, the joints of hammer toes excised or the toes amputated with complete absence of pain

One or two operations which are frequently carried out under local analgesia require further directions —

Circumcisions present some difficulty at first, but a little practice enables one to overcome it As the operation is usually undertaken in cases in which the foreskin is infected, local infiltration into it is not advisable so that resort must be made to regional anæsthesia The solution is injected under the skin completely

round the [illegible] the pubis This renders the [illegible] painless To obtain [illegible] upon the mucous membrane [illegible] the needle [illegible] inserted into the corpora cavernosa [illegible] side, and at least [illegible] c injected into them A wait of about ten minutes is advisable before commencing the operation

Should the operator be unable to obtain analgesia of the mucous membrane in this way direct infiltration into the sensitive area can be resorted to, but by practice this can be avoided

The removal of a rib for empyema is essentially a case for employing local anæsthesia, as the patient is often in a most unfavourable condition for a general anæsthetic This operation can be performed by regional anæsthesia alone but the combination of local infiltration and regional anæsthesia is the easiest to carry out The rib to be removed is determined upon and a subcutaneous infiltration made along it in the position of the intended incision The detached needle is inserted at the dorsal extremity of the infiltrated area and the lower edge of the rib felt The needle is now pushed up just under the rib and 5 c c injected into the subcostal groove to block the intercostal nerve The deep tissues over the rib are now infiltrated, and injections made into the periosteum on its outer surface The infiltration must be sufficiently wide to reach the intercostal spaces both below and above the rib As much as 40 c c of the solution may be necessary and can be injected with safety The operator must remember to take the utmost care when dividing the rib to avoid wrenching and pulling, as considerable pain will be transmitted through the thoracic wall During the last twelve months this method has been employed in over thirty of such cases operated upon at the Royal Naval Hospital, Haslar

The passage of instruments for dilating strictures of the urethra may be made less painful by injecting 10 c c of the solution into the urethra The syringe without the needle attached, is placed in the meatus and the glans held firmly round the nozzle while the solution is forced in The fluid must be kept in the urethra by holding the meatus or tying tape round the glans for ten minutes Complete analgesia cannot be obtained, but considerable relief is afforded the patient

Tracheotomy can be performed by infiltration of the skin along the line of incision, with a deep injection on each side of the trachea to render the analgesia complete

These examples are given to instance a few of the cases in which local anæsthesia may with advantage be used

With a [illegible] of anatomy and [illegible] with local infiltration [illegible] more difficult nerve blocking procedures such as injecting the ulnar and median nerves for operations in the palm and injecting the brachial plexus for arm operations may be successfully attempted

I have laid more emphasis on the local infiltration method on account of its safety and simplicity and in the hope that it will be employed in the place of a general anæsthetic I would therefore urge the wider adoption of these methods, and I trust that these notes may prove of assistance to those who up to the present have not had much experience in them

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A REPORT ON THE LATE MEDICAL CONDITIONS IN SERBIA, WITH SPECIAL REFERENCE TO THE TYPHUS FEVER EPIDEMIC

By Temporary Surgeon Edward R. A. Muelrelwether, R.N.
British Naval Mission in Serbia

The general conditions governing the health of the population, including the army are so complex and their relative value so uncertain that it is difficult to estimate accurately either the present condition of the country or the prospects of future epidemics. A general survey, however, can be made and the general tendencies computed approximately.

With regard to geographical and meteorological factors, four-fifths of the country is mountainous, the average height increasing from north to south, thus cutting off the warm winds from the Mediterranean Sea. The country is entirely deprived of these by mountains; this results in the climate being extremely dry and hot in summer and cold in winter. Severe floods occur in the river valleys in the spring, when considerable areas are inundated, the water level receding gradually as spring merges into summer. This no doubt accounts for the fact that malaria is endemic in the river valleys.

Means of communication are bad; one railway running from end to end of the country, from north to south, with short lateral offshoots. There are a few pieces of narrow-gauge line also. First-class roads are few and have been badly cut up during the War; the majority of villages being united by mere tracks.

Since three-quarters of the population is engaged in agricultural pursuits, each one owning a small plot of land, there are few crowded centres of population, but innumerable small villages. Those last two factors—i.e. lack of communications and equable distribution of the population—would in normal times limit the spread of epidemics. The flight of refugees, however, from the parts of the country overrun by the enemy and from the frontier districts has nullified them.

The standard of housing of the inhabitants is fair and no worse than that in the country districts of Ireland; the houses having mud floors and mud-plastered walls. The standard of cleanliness varies greatly; some houses are spotless, particularly those in which people of Hungarian descent live, but the majority are not clean.

The water [illegible] springs flowing [illegible] but the former are typical examples of the w[illegible] they are shallow loosely bricked in to near the top, and cov[illegible] by a wooden protection round the mouth They are often [illegible] near, the street and surrounded by a sea of mud, so with [illegible] effort made to protect them from neighbouring latrines [illegible] stables, pollution by animal and human excreta must be [illegible] common

The general intelligence of the peasants is good but their ignorance of the simplest measures, either of prophylaxis or [illegible] treatment of disease, is pitiable, yet all are very willing, even anxious, to be inoculated against cholera and enteric fever As regards personal cleanliness, the peasants keep their bodies and their underclothing clean a great contrast to the often filthy state of their external garments

Sanitary conveniences are bad, even amongst the better educated and richer classes The usual type of closet is a large hole in the ground covered by rough poles laid horizontally [illegible] space being left between the two centres ones the whole [illegible] enclosed by poles put cross-wise and the intervals roughly thatched, another variety is similar, except that a boarded seat is provided No attempt is made to disinfect or even cover up the excreta so that every opportunity is given for the spread of cholera enteric fever, and the allied infections Belgrade has a good water closet system in use

The supply of hospitals and doctors is very inadequate especially amongst the civil population The majority of cases of typhus fever (civilian) during the epidemic in the spring were I believe, never seen by a doctor the village of Grotska on the Danube with 1 500 to 2 000 inhabitants had until quite recently, when doctors from the French Sanitary Commission arrived no doctor and not even a temporary hospital! There were 140 deaths from typhus fever in two months, and this village is by no means unique

Of infectious diseases the majority have been cases of typhus and recurrent or relapsing fevers also a certain number of cases of enteric fever, variola, erysipelas and scarlet fever There were besides many cases of severe sore throat, with prostration Whether the latter are definitely diphtheritic in origin or not is difficult to say in a small epidemic amongst the American Red Cross at Gjevgheli the Klebs-Loeffler bacillus was absent

[illegible] than any [illegible] single [illegible] except typhus fever The disease has presented no abnormal features except the large number of cases in which acute suppurative parotitis has developed as a complication Undoubtedly a great number of the supposed cases of recurrent fever were typhus fever bronchio pneumonia, influenza and other easily confused diseases This confusion was due to the lack of doctors

Enteric fever small pox, and the common acute fevers are present, though in comparatively small numbers erysipelas is slowly increasing An authentic report has come from the American Consul at Salonica of the occurrence of plague there The cases were septicæmic, with 100 per cent case mortality

With regard to cholera I am unable to obtain any accurate information but during and after the second Balkan War it was very prevalent in Southern Serbia and there appears to be every opportunity for another epidemic

The epidemic of typhus fever has been the worst on record, the total mortality from it will probably never be known, owing to the large and indefinite number of deaths which have occurred without the cases ever having been seen by a doctor The disease has not been identical with that described in the text books The incubation period was fairly definitely fixed at twelve days in one case there were usually no prodromal symptoms In a few cases, however, a general malaise occurs with a looseness of the bowels and a feeling of prostration which make the patient glad to take to his bed this does not last more than twenty-four hours The patient feels perfectly well until the onset, which is sudden and accompanied by a rigor pain in the back and legs, and a severe headache The last-named is a constant feature, and one of the most striking points The temperature runs up rapidly to 102° F or over and the pulse rate corresponds Prostration is marked from the beginning There is usually a slight cough early in the disease, but except for a few fine crepitations, nothing abnormal can be found in the lungs The fever is continuous, 102° to 103 5° F with morning remissions of 1° to 1 5° Not infrequently the temperature drops to below 100° F on the morning of the second day, and the patient feels well This tends to lead one astray in the diagnosis Two early signs are bands of injection of the conjunctiva, extending from either canthus towards the cornea, and slight contraction of the pupil The rash appears on the fifth to sixth day, and consists of small petechiæ, carmine

in colour, not disappearing on pressure at [illegible] the touch The distinctness of the rash var[illegible] cases it does not appear at all

Toxæmia is marked during the second [illegible] apathetic and quietly delirious frequently [illegible] The pulse-rate increases to 120, 130 or [illegible] feeble fluttering, and irregular in character [illegible] day nearly every case looks desperately ill [illegible] moribund Elimination of waste products [illegible] inadequate from the onset

About the twelfth day—sometimes [illegible] beyond the fourteenth—in cases which [illegible] improvement is noticed the temperature [illegible] pulse becomes steadier From this point progress [illegible] temperature declines, taking three or four days to [illegible] normal, and the pulse falls to 80 to 90 The patient [illegible] improves both mentally and physically No crisis [illegible] pneumonia occurs Death occurs at any time during the [illegible] week, and recovery is improbable if no improvement [illegible] by the fourteenth day The patient dies comatose [illegible] by the accumulation of toxins Convalescence is rapid [illegible] are rare and unimportant

Occasionally, although the temperature falls to normal, but little objective improvement is noticed and the patient remain in a semi comatose and critical condition for some days

Local gangrene is a common complication most frequently affecting the toes, but it is also found in the soft tissues of the nose the scrotum, and the fingers A suppurative parotitis occurring simultaneously on both sides is quite common but does not seriously affect the prognosis as it rapidly clears up on free incision Otitis media not infrequently bilateral is met with and a slight degree of deafness is very common indeed Thrombosis of veins is another sequela I have seen no cases of bronchopneumonia or gangrene of the lung

A severe myocarditis is constant and has been the cause of many deaths during convalescence Post-typhus psychoses occur but are not serious all patients, however, show an inability to concentrate their minds on any work and a certain amount of loss of memory for several months That the disease does affect the central nervous system is shown by the almost invariable occurrence of incontinence of urine and fæces during the second week

Diagnosis during the first few days rests mainly between typhus

and sand-fly fevers, influenza, dengue, small-pox and malaria, and perhaps relapsing fever. The severe headache of typhus fever and absence of coryza distinguish it from influenza, moreover the onset is more sudden and severe in typhus fever. Absence of initial vomiting and of prodromal rashes distinguishes it from small-pox. From malaria, the history of previous attacks of residence in malarious districts, together with an examination of the blood will differentiate it. Dengue, with its pandemic character, acute pain in the bones, marked intermission which occurs in the first few days, and erythematous rash, will be easily distinguished. Relapsing fever is readily diagnosed by demonstrating the *Spirillum obermeiri* in the blood.

Amongst the British Naval Mission the greatest difficulty has been found in differentiating typhus fever in its early stages from sand fly fever. The onset of the latter is identical with that of typhus fever, except that it is slightly less severe and the headache is much less marked. For the first forty eight hours the two present very similar symptoms.

Age is the important factor in the prognosis, the case mortality progressively increases with each decade. Those over 40 have but little chance. Compensated valvular disease of the heart does not influence the prognosis unfavourably; pre existent arterio-sclerosis and cardiac hypertrophy are unfavourable.

With regard to treatment patients should be put to bed immediately, no pillows should be used. Those who fight against the disease, and go about their work during the first few days, appear to do badly. Adequate nursing is of first importance. In view of the cardiac weakness the patient should be kept perfectly flat, and spared the slightest exertion. Fresh air and persistent hydrotherapy are of the utmost value in promoting elimination; the bowels should be opened by a brisk purge at the onset, and afterwards kept open by saline and enemata. A close watch should be kept on the daily amount of fluid ingested and eliminated, and every endeavour made to keep the urine adequate in amount and of a light straw colour. If the patient is too ill to take sufficient fluid, saline should be given *per rectum* and subcutaneously; if still insufficient intravenously; ample food should be given though light with plenty of milk and eggs. The heart must be carefully watched, and during the second week stimulated as occasion demands. Great care must be taken during convalescence not to get the patient up too soon as the heart takes a considerable time to recover; anything calculated to put any strain on the

[illegible] carefully graduated, and its effect on the pulse noted [illegible] individually, in any case the patient should not even [illegible] raised until a week after the temperature has fallen to normal; neglect of these precautions has undoubtedly been the cause of many avoidable deaths.

The cause of the epidemic and its prophylaxis may now be discussed. The Serbians insist that the epidemic resulted from the Austrian invasion and occupation in the last month of 1914 but the disease was present in the country before this, and probably the prime contributing cause was the flight of refugees from the invaded areas and consequent overcrowding of other districts; thus Nish, normally a town of 30,000 inhabitants, was compelled to house 100,000.

Another factor was that, when the Austrians were driven out of the country, a great number of prisoners were temporarily housed under bad conditions. The hospitals were already so congested that the beds touched each other; three patients were put into two beds and many had no beds at all. These conditions gave every opportunity for the spread of infection.

On February 14, 1915 there were 40 cases; on March 29 there were 898 cases; on April 23, 460; and on May 21, 273. Thus the epidemic very rapidly diminished and new cases tended to be atypical and to limit themselves to doctors, nurses and attendants.

The disease does not appear to be so excessively contagious as that described by the text-books. There has been nothing to disprove the louse theory of the propagation of infection; in a louse free hospital—as, for example, the American Red Cross Hospital, Belgrade—bed to bed infection was very uncommon though it was impossible at the height of the epidemic entirely to segregate the typhus fever cases; but in a louse infected community the rapid spread of the disease is astounding.

The number of cases amongst doctors and nurses who may be presumed to take average precautions rather leads one to think that there may be other secondary, channels of infection. On the other hand, the great difficulty or rather impossibility of avoiding picking up one or more lice when attending typhus patients, the inconsistent way in which some catch the disease soon after arriving in the country, and others go through the whole epidemic only to catch it at the end, and the fact that non immune nurses lived and slept in the same room as other nurses ill with typhus fever, during the whole course of their illness, without contracting

the disease, all these lead one to think that a [illegible] ' who can be eliminated by suitable precautions, is responsible

All prophylactic precautions are directed against the louse, in every case patients whether suspected of typhus or not as they come into hospital, should have their clothing taken away and thoroughly disinfected by steam or destroyed by burning, at the same time they should be given an antiseptic bath, special attention being paid to the scalp and other hairy parts doctors and nurses while attending on the patients, should wear louse proof clothing, i e, a cotton outer garment consisting of trousers with socks for the feet with a sleeved coat the whole made in one piece and opening down the front It should be closely tied at the wrists and neck and the head should be covered with a cotton cap nurses can wear their ordinary cotton dresses over these Similar underwear closed at the wrist and ankles should be worn by everyone

Railway carriages and public conveyances should be repeatedly disinfected formaldehyde vapour except very concentrated seems of little use against lice, and sulphur dioxide is preferred For personal application, one of the many paraffin preparations is effective and useful, the Germans, in papers published since the beginning of the War, recommend the use of powdered naphthalene and naphthalene ointments

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SOME AEROPLANE [illegible] WITH NOTES ON THE [illegible]

By Staff [illegible]

It may be of [illegible] diseases that are met with [illegible] Navy and also to publish [illegible] personnel [illegible] on the selection of air pilots

High-velocity [illegible]

These are not new and [illegible] so that they need not be dwelt [illegible] velocity is higher than in any [illegible] the injuries are correspond[illegible] is that, although the [illegible] high speed—not vertically [illegible] fatal but at a diving angle—[illegible] very [illegible] obvious injuries but [illegible] The reason that the pilot is not [illegible] fact that the present aeroplanes [illegible] engine in front and the pilot's [illegible] the machine is usually telescoped [illegible] will probably have one or both of the [illegible] to the fore position of the legs [illegible] there are no obvious serious injuries [illegible] exceedingly hard to combat [illegible] multiplicity of minor internal hemorrhages [illegible] effect on the internal organs [illegible] body, which was moving forward [illegible] case which I witnessed an aeroplane [illegible] to the ground from a height of 200 ft. The pilot sustained a compound fracture of one leg with deep shock he was attended to at once, and under treatment recovered a good deal from the shock within three quarters of an hour he was in a well equipped hospital and his condition was then satisfactory Shortly afterwards, however, collapse became serious and every measure was taken to combat this but without success Internal hemorrhage was suspected, but there was no indication as to its seat it may have been profound recurrent shock only

[illegible]

These have [illegible] pilots nowadays [illegible] ing or landing [illegible] carriage and the [illegible] is held up by [illegible] ward and he is lucky if he escapes a scalp [illegible] striking some sol [illegible] part of the aeroplane [illegible] scope with only this forcible [illegible] of the [illegible] the neck will go on to its extreme bending [illegible] that the strain is thrown upon its structure [illegible] If [illegible] after such a smash it will be found that the ner[illegible] tend r and he will in mild smashes suffer only from [illegible] of the neck for a few days If the smash is a biggi[illegible] trouble must be expected, and probably an X ray [illegible] may show a fracture without displacement Ther[illegible] case on record in which although the actual smash wa[illegible] instant death was due to dislocation of the neck [illegible] cases where a great tenderness of the neck is found [illegible] X ray examination and in any case of slight tenderness [illegible] rest for a short period as there is probably some slight spinal [illegible] ssion I am not altogether a believer in the rather prevalent theory that it is necessary for the uninjured pilot to tell [illegible] at once after a smash to prevent him worrying over his [illegible] and lapsing into a nervous state

The Eyes

These are not prevalent and it is noticeable how, even in a bad smash, with its attendant rending of timber and splinters, although the pilot's face is cut the eyes escape The only eye injuries I have met have been in the tractor type when during flying, some nut or bolt has become dislodged and has struck the pilot in the eye The force of the blow is tremendous as the missile gets the full blast of the propeller in stream In one case the pilot had his goggles smashed his face cut and sustained an extremely painful blow on the eyeball It was with great difficulty that he landed, the injured eye being closed and giving intense pain and the sight of the other eye being blurred with sympathetic weeping I saw him at once and after a quick examination applied warmth to the eye to ease the pain atr pine was put in and a careful examination was made I feared internal trouble and possibly a dislocated lens but the eye was normal The eye continued to be

[illegible] injury occurred after ten [illegible] only an occul[illegible] that there was no damag[illegible] and agreed wi[illegible] was purely a case of ton[illegible] weeks before the organ wa[illegible] In this [illegible] been for the goggles th[illegible] damage He was wearing [illegible] dangerous from the splinte[illegible] resisting and non-splinter[illegible] media for aviation go[illegible] suffer from the fact that [illegible] blurred vision being to an avia[illegible] aviators to have goggles fitted wi[illegible] clear vision is very resisting [illegible]

Frost III

This condition I should not [illegible] following case which occurred A pilot [illegible] of 15,000 ft in winter wearing th[illegible] with ear flaps goggles and a sh[illegible] descended he complained of [illegible] amination showed that the exposed [illegible] cheeks and chin were reddened and swo[illegible] slightly affected this he said was [illegible] pulled the scarf up and had held it [illegible] and that he had breathed through the [illegible] keep it warm The condition was one [illegible] period after frost-bite there were sem[illegible] and sensation was present everywhe[illegible] increased in size until the features we[illegible] eyes were closed There was a marked [illegible] the covered and uncovered skin [illegible] reaction as much as possible by bringing the patient [illegible] ventilated cool room with cold water applied [illegible] about twenty hours the swellings had [illegible] days had disappeared the skin peeled off in [illegible] was a great success The owner appe[illegible] younger On working out the temperature [illegible] 4 800 ft the thermometer was at fr[illegible] he had about 34 degrees of frost It is very evi[illegible] aspiring to great heights should wear a [illegible] face

[illegible]

These, [illegible] the pilot seated behind him.

(1) *Petrol* [illegible] petrol pipe or a faulty tank, a spray of petrol [illegible] is a big jet the pilot may get a liquid petrol spray [illegible] is a fine spray and the pilot gets enveloped in [illegible] he inhales, he may feel quite dazzy and he will [illegible] quite funny when he first got out of the aeroplane [illegible] I take it that it was a petrol anæsthesia that we [illegible] Fortunately modern aeroplanes have a petrol tap [illegible] and the tap being controlled from the pilot's seat [illegible] it is not very common in these days.

(2) *Exhaust* [illegible]—These consist chiefly of water vapour [illegible] Some engines exhaust direct [illegible] by a short exhaust pipe while a third [illegible] exhaust pipe taken well back and behind the [illegible] engine is usually covered by a light casing [illegible] this casing only allows exhaust gases [illegible] and so pass under the front of the aeroplane If the construction of the aeroplane is such that these gases cannot get into it all is well but usually there are holes in its floor which act as very efficient up takes the outlet being alongside the pilot's head The gases will have a bad effect upon the pilot and probably make him feel quite ill—he gets a headache &c if he continues long in the air I think, possibly the statement of some pilots that on long flights they have felt quite sleepy is a good deal due to the exhaust gases and other direct gases given off by a petrol engine This is a very interesting and important subject that I think might repay an expert investigator in the near future

"AEROSTHENIA"

This name I use for the condition which one occasionally finds amongst aerial pupils The pupil pilot is not comfortable in his flying he has not got that self-confidence which is necessary in the air He may fly well and be a promising pupil, but he is not happy and is not enjoying himself he is perhaps too keenly apprehensive that he may make a bad landing or that he may get an engine failure over bad landing ground and smash the machine He goes on flying, hoping he may overcome this but he does not He sleeps badly, worries over it, and eventually he gets into a

[illegible] pupil [illegible] not suited [illegible] the pupil's [illegible] type [illegible] some thing [illegible] given to every [illegible] and to be [illegible] in the wide [illegible] with no [illegible] is a strange [illegible] In emergency [illegible] right thing is not done at the right [illegible] dines [illegible] must [illegible] midnight [illegible] possible [illegible] think it out [illegible] to produce [illegible]

[illegible]

In aircraft height [illegible] not experienced [illegible] reason that there is [illegible] is only a vast expanse [illegible] get the feeling [illegible] I have come across [illegible] met with usually [illegible] stuff [illegible] The symptoms are [illegible] some pain and stinging in the ears [illegible] should descend fairly slowly for the first few thousand [illegible] this is usually done but should a pilot [illegible] light he must naturally descend at [illegible] which the [illegible] gliding angle [illegible] I have had very little experience [illegible] of pilots who reach great altitudes the [illegible] of [illegible] in the high altitudes is [illegible] atmospheric conditions, not very fast Effects of this rarefied atmosphere felt by pilots attempting [illegible] and [illegible] with a suitable mouthpiece

[illegible]

A few years ago I tried to fix by the experience of a flying school, the ages advisable in selecting pupils and the conclusion formed was 23 years as the lowest and 40 years as the highest limit, certainly pupils should not be [illegible] 30 except in rare cases This highest limit I still hold to but the lower limit I have altered The twenty third year was given as the lowest limit because it was thought that previous to that age the young pilot was inclined to be reckless, a reckless pilot in an airplane of that time meant a smash and the end of the pilot's flying career if not of his whole career Latterly—that is in the last few months—young fellows of 18 and 19 viz boys who have just left the public schools or just started on a Varsity career, have been taken for training as pilots I admit that I had some fears that they would

be rather to [illegible] have been quite [illegible] is most excellent [illegible] in saying that there have been fewer rejections due to [illegible] show aptitude for flying, amongst the younger than amongst the older pupils.

Eyesight

A pilot must have full normal vision and I am strongly of opinion that candidates for the Air Service whose vision needs correcting by glasses should be rejected, or in fact should never be considered for entry My reason for full normal eyesight I gave in a previous article[1] A short time ago I came across so interesting eye case A pupil came to me and stated that he found difficulty in judging his landings and he wondered whether his eyesight had anything to do with it I examined him by the ordinary distance reading test With both eyes he had full vision, and each eye tested separately showed full vision, but on further examination I found he had a concomitant squint on enquiries, he told me that, while flying, if he wished to look at his altimeter, he had to close one eye as both gave him a blurred picture and he had the same difficulty on landing unless he closed one eye This explained his trouble A pilot in landing must be able to gauge his height above the ground and to know when to turn up the machine from its gliding angle to the flattening out for landing If he leaves it until too late he crashes into the ground, and if he turns up too soon he lands on air and eventually drops with a crash on the proper landing material (Aeroplanes are rather delicate upon their feet)

Free Movement of the Joints of the Lower Limbs

It is most important that the knee and ankle joints should be perfectly free and normal, as a free movement of these joints plays a very important part in the rudder control The rudder control of an aeroplane is of supreme importance, and especially so in the very speedy machines now used An interesting case, bearing on this, came under my notice An officer under instruction stated that he was not making any progress in his flying and thought this was possibly due to the fact that, owing to a defect, he had not got free movements of his ankle joints Examination showed that, owing to

[1] "The Flying Service from a Medical Point of View" JOURNAL OF THE ROYAL NAVAL MEDICAL SERVICE Vol 1 No 1

[illegible] Achilles [illegible] only [illegible] [illegible] the [illegible] [illegible] the [illegible] [illegible] the [illegible] [illegible] at a right angle can be comfortably retained there and does not slip. This officer owing to his defect could not return the bar in this position, but was obliged to point the toes and hold the rudder bar back against the front of the heel of the foot, his position entailing not only an extension of the ankle-joint but also some extension at the knee-joint; consequently in his rudder movements he lost the fine foot movements due to ankle action and also a good deal of the fine movements of the knee action. I tried him in an aeroplane and found that the rudder control was a jerky one and this chiefly by a nearly full extension at the knee and a pushing down of the thigh due to a tilting of the pelvis. This was a great handicap; he had no fine feel on his rudder bar and no fine movements on his rudder control which are of supreme importance. His position in the aeroplane was uncomfortable and on a long flight he would have been tired and would have suffered from cramp in the calf muscle. He was safe on a slow machine but on a fast machine with quick acting controls he would have met with disaster. The only other accomplishments I can think of in which such defect would cause embarrassment are rowing and cycling.

Belts.

All aeroplanes are fitted with belts with a quick release apparatus and all the pilots nowadays realize the necessity of these belts and use them. One great use of the belt is that, should the aeroplane get a steep nose dive, the only thing that keeps the pilot from falling out is his belt; another point is that, even if he is not thrown out, he will, unless belted, slip forward in his controls and still further depress the aeroplane; also his feet will slip off the rudder bars, and the aeroplane will become absolutely out of control. Several fatalities have been due to this cause. In one I witnessed it was the more tragic because when we got to the wreck we found that the pilot was belted in but the belt had been attached to the seat; unfortunately the weight of the pilot with the aeroplane in a vertical dive was transmitted through the belt to the seat, and the seat fastenings carried away. It was impressed upon me very strongly that the belt must be attached to the aeroplane itself and not the seat.

Historical.

[illegible] GILBERT BLANE M D F R S

An Administrator of Naval Medicine and Hygiene

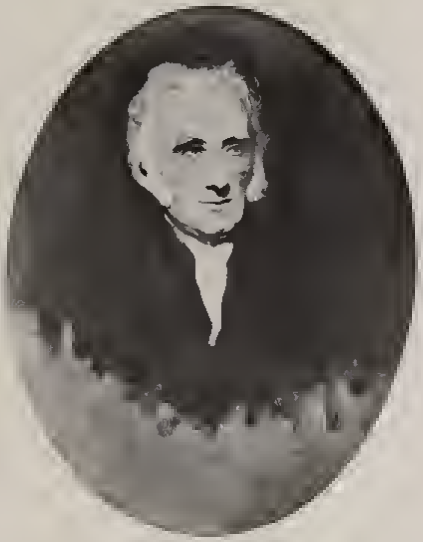
[illegible] THOMAS ROLLESTON C B M D [illegible]

[illegible] Royal Navy, Honorary Physician to St George's Hospital

[illegible] the history of our Naval Medical Service [illegible] both most industrious and [illegible] and the pioneer and [illegible] efforts into official [illegible] appropriate sequel to the [illegible] Journal[1]

[illegible] fourth son of Gilbert Blane of Blanefield [illegible] and was born on August 29 (O S) [illegible] merchants descended from Thomas [illegible] estate at Gartsan Originally intended [illegible] of Arts at Edinburgh at the early [illegible] years obtained a sound education [illegible] on Medical Logick and in [illegible] his other writings. About 1769 [illegible] He William Hunter his future [illegible] to the cure of bodies rather than [illegible] next five years in the Medical [illegible] such success that he was one [illegible] and delivered an oration [illegible] Cullen's teaching made [illegible] for his opposition later [illegible] Boerhaave He took the [illegible] but meanwhile (1776) he [illegible] recommendations from Cullen [illegible] so familiar as the author of [illegible] on anatomy and surgery [illegible] his nephew Matthew Baillie [illegible] though considerably younger, [illegible] ped [illegible] ce for fashionable practice Through [illegible] ices [illegible] me personal medical attendant to the [illegible] with accomplished tastes and much in [illegible] He thus [illegible] an introduction to society and to Sir [illegible] as private physician without any [illegible] M S [illegible] wich the flagship of the Fleet du-

[illegible] London 1825 third edition [p 190



SIR [illegible] BART. [illegible]
By [illegible]
[illegible]

[illegible] is Eve 1770 in as the [illegible] Gibraltar During [illegible] engagements at which [illegible] Blake in the [illegible] officers was crippled [illegible] the Admiral to carry [illegible] and while thus [illegible] was slightly wounded [illegible] with increase of [illegible] was officially appointed [illegible] and in his [illegible] and a monthly report from [illegible] as to the health of [illegible] ships In the autumn of 1780 [illegible] of 40 pp from [illegible] entitled An Address to the Officers [illegible] in His Majesty's Ships and Vessels in the West Indies and America [illegible] published at New York [illegible] the Fleet often touched Its subject matter—the prevention of [illegible] in the service afloat—was [illegible] from Cross [illegible] Essay on the Most Effectual Means of Preserving the Health of Seamen in the Royal Navy (1757) second edition 1762 third edition 1777 In a letter to William Hunter describing a hurricane in 1780 [illegible] subsequently investigated in Barbados he commented on the ships [illegible] observation that it apparently cured patients with fevers [illegible] and acute pleurisy When ill health (gout and sciatica) and lack of reinforcements obliged Sir George Rodney to return to England in September 1781 Blane accompanied him and on December 3 took the licence of the Royal College of Physicians of London Inspired by his keen insight into the wants of the Navy he laid before the Board of Admiralty (October 31 1781) a memorial pointing out the neglect of cleanliness ventilation and dryness in the ships the need for a supply of lemon juice to prevent and cure scurvy, the prevalence of intemperance the inadequate care of the sick on board ship the absence of proper bedding and soap and the desirability of a [illegible] supply of medicines and other necessities to naval surgeons These crying needs fell on deaf ears and were not supplied until fifteen or more years later when as one of the Commissioners of the Board of the Sick and Wounded Sailor he was in a position to enforce them On December 11 1781 he hastily left London with Admiral Rodney sailing with reinforcements from Plymouth in January 1782 and remained on active service until the end of the War with the American Colonies From His Flag which consisted of seldom less than twenty and sometimes more than forty ships of the line he collected numerals for his Observations on the Diseases of Seamen thus obtaining a thoroughly practical knowledge of naval medicine and hygiene He gained the confidence and regard of his Admiral and colleagues so entirely that on the declaration of peace in April 1783 the principal officers of the station unanimously petitioned the Admiralty that as his appointment preclude full pay a pension should be bestowed upon him This was done and in 1803 the grant originally of ten shillings a day was doubled on the recommendation of the Lords of the Admiralty

In 1783 the year of his return to London he was elected Physician to St Thomas's Hospital, largely through the influence of Lord Rodney then a national hero and of the professional support of his countrymen Dr W Saunders and Sir Walter Farquhar At this time the Hospital which contained 500 beds was overcrowded and infectious fevers were so common that in the previous year his two immediate predecessors—one surgeon and several attendants had succumbed to fevers caught in the wards The number of beds was accordingly reduced, and new methods

of ventilation [illegible] coldness were adopted with most salutary [illegible] London not [illegible] his permanent home, and on July 11 1786 he married Elizabeth [illegible] only daughter of Abraham Gardner [illegible] merchant In 1788 he resigned his post at St Thomas's after twelve years hard work [illegible] the practical and literary sides of his profession Some fruits of his hospital labours were embodied in a paper, "On the Comparative Prevalence Mortality and Treatment of Different Diseases in London illustrated by Abstracts of Cases which occurred to the Author at St Thomas's Hospital (1783 94), and in his Private Practice (1795 1806) Incidentally, he instituted a comparison between the diseases of the poor and those of the rich, and is sometimes quoted to the effect that gout did not figure among his hospital patients, whereas it constituted one twenty sixth part of his private practice This indeed is the statement given in the earlier editions of the paper[1] but in the latest edition twenty two cases were transferred from the category of "rheumatism" and one from that of neuralgia to that of gout, making one in every 126 hospital patients[2] It is perhaps worth while to notice this change in his statistics as a reader of his latest estimate might regard a quotation from his original paper as inaccurate It recent times Blane's experience of the absence of gout from hospital practice has been commented on as exceptional, and possibly similar contemporary criticism led him to revise his case notes This paper also contains an historical account of old St Thomas's Hospital with special reference to the fluctuations of disease and mortality in London during its existence. Though a most industrious worker he does not appear to have been an equally successful clinical teacher[3] While a hospital physician he gave the Croonian Lecture before the Royal Society "On Muscular Movement" on November 13 and 20 1788, brought out the "Observations on the Diseases of Seamen" (1789), and was doing well in private practice as shown by his appointment successively as Physician Extraordinary to the Prince of Wales (1789) Physician to the Household of the Prince of Wales (1793) and Physician to the Duke of Clarence His best known work "Observations on the Diseases of Seamen" which was professedly intended not for the medical profession exclusively but also for commanders upon whom chiefly the prevention of sickness depends passed into second and third editions in 1790 and 1799 It consists of three parts a detailed account of the health and diseases of the Fleet during the years (1780 83) that he accompanied it the causes and prevention of diseases in fleets, in which infection the influence of ventilation food water clothing exercise and fatigue are discussed and the description and treatment of the affections such as fevers dysentery and scurvy most frequently seen at sea It is clearly and pleasantly written well supported by statistics indeed sufficiently and in good taste to other authorities and fully justified the trust which the Government placed in his hands In 1790 he wrote an account of the bark *Nardus*

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[1] *Med Chir Trans* London 1814 iv 89 and "Select Dissertations on Several Subjects of Medical Science" London 1822 p 150

[2] "Select Dissertations on Several Subjects of Medical Science" London 1833 [illegible] p 205

[3] [illegible] in Dictionary of National Biography, by [illegible] Payne 1886 xiii p 202

[illegible] or spikenard, specim[illegible] received [illegible] in India and described it [illegible] especially [illegible] application for abdominal pain[1]

Blane's professional life [illegible] to three periods the first as Physician to the Fleet [illegible] and when [illegible] St Thomas's Hospital and in practice [illegible] The third and [illegible] ing part of his active life in which he [illegible] frequently consulted by the Government and other [illegible] on questions of public health especially those concerning the Navy The [illegible] of his work was a preparation for the third and most important [illegible] on which his reputation mainly depends In 1780 when Lord Sandwich [illegible] the Admiralty, he was appointed to join Dr R Fitz Barnes Commissioner of the Board of the Sick and Wounded Seamen and was thus enabled to bring about the reforms designed to improve the sanitary conditions afloat which he had urged upon the Admiralty fifteen years before This office he held until 1802 when as a result of the Peace of Amiens, the Fleets were considerably reduced Shortly after his appointment an Admiralty order was issued enjoining the use of lemon juice in the Navy This came into force in 1796 and at once banished scurvy from the service afloat Fresh fruit and vegetables had been known to the Dutch as prophylactic and curative agents for scurvy as far back as 1564 and had also been successfully employed in 1593 by Sir R Hawkins in the "Dainty" and by Commodore James Lancaster in 1600 but all this had been forgotten until James Lind also a Physician to Haslar revived it in 1754 Blane who gave the fullest credit to his predecessor used fresh lemons limes, and oranges in 1782 to cure scurvy in a fleet of twenty eight ships of the line and as the result of his advise scurvy was thus entirely prevented in H M S Suffolk which made a voyage of twenty three weeks in 1794 Otherwise his recommendations were almost neglected and the delay of forty one years before they were officially adopted might have been greatly prolonged had it not been for Blane's powerful influence It is attractive though sometimes fallacious to interpret the speculations of former writers in the prophetic anticipations of modern knowledge But with all [illegible] there is some ground for crediting Blane with the germ of the modern conception that the absence of a vitamine is the essential factor in the pathology of scurvy In discussing the proximate causes of this disease he remarked that the phenomena "the circumstances all of which might naturally be expected from a deficiency of wholesome aliment and the absence of that active state of absorption and renewal which in health is in constant requisition for the purposes of growth and repair And it follows from this view of the subject that the operation of citric acid is a remedy is that of a specific stimulus to the absorbents and not that as nutritious matter, or as a chemical antiseptic, according to the theories of the humeral pathology The difference between ancient and modern views

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[1] *Phil Trans* London 1780 vol lxxx p 1[illegible]

[2] Scurvy [illegible] in the medical [illegible] Sir Alexander Armstrong writing in 1878 stated that [illegible] symptoms scurvy has always received to a greater or less extent Naval Hygiene and Scurvy 1878 p 7

[3] Medical Logick London 1828 p 56

[illegible] one partly [illegible] ins Blane of course did [illegible] ploy the rec[illegible] armed word vit[illegible] In his use of 'definit[illegible] reference to [illegible] the affections no [illegible] is 'deficiency diet' is up to date

By promoting [illegible] hygiene and ventilation on ships he did much [illegible] diminish the prevalence of infectious fevers In 1796 he suggested [illegible] Lord St Vincent that an application should be made to the Board of Admiralty to provide soap to the crews of his ships, either gratuitously or by deducting the cost from their pay A general order was accordingly issued for the supply of soap on the latter footing As showing the economic value of this old-fashioned reform it may be mentioned that the cost of the supply of soap is estimated to be one tenth of the expense incurred by the injury to health due to want of personal cleanliness In 1802 Blane and Commissioner Inman were asked by Lord Chichester, the Secretary of State for the Home Department to recommend some means for preserving the health of convicts during their passage to Australia, very few of whom survived the journey Their advice as to proper ventilation of the lower decks by means of wind sails and air tubes was most successful in diminishing the incidence of infectious diseases and the mortality That to some extent he realized the modern problem of disease carriers is shown by his use of the suggestive phrase 'dormant infection' in the following passage There is a degree of risk in mixing two different sorts of men even when there is no actual disease or suspicion of infection for whether it is from dormant infection or merely from the circumstances of change of air such mixtures are known from experience to be sometimes productive of sickness '

A reform advocated by him fifteen years earlier was effected in 1796 when naval surgeons were for the first time provided free of expense with the more important drugs In 1801 this concession was made complete by the gratuitous supply of all medicines About this time the sick bay was much improved, and was transferred from the ill ventilated forepart of the lower gun deck to a position under the forecastle In this as in other matters of hygiene Blane enforced the views of James Lind These various reforms were followed by a remarkable improvement in the health of the Navy thus in 1782 out of 100 000 seamen and marines 1 in 8 3 were sent sick to hospital whereas in 1813 with a corresponding complement of 110 000 the proportion of sick fell to 1 in 10 75 [3] A picturesque description of the mortality among sailors at a much earlier date is given by the Portuguese historian Vieyra — If the dead who had been thrown overboard between the Coast of Guinea and the Cape of Good Hope and between that Cape and Mozambique could have tombstones placed for them each on the spot where he sank the whole way would appear a continuous cemetery

In 1797 he visited officially the Russian fleet then wintering in our ports and much occupied with sickness which was found to be chiefly due to cold and gangrene due to cold His comment that in winter campaigns the Russians suffer more severely than the British, French Austrians and Prussians from cold is in rather striking contrast to what

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[1] [illegible] Diseases of Seamen 1799 third edition p 227

[2] A first statement of the progressive improvement of the Health of the Navy 1816 p 61

[illegible] the importation of plague [illegible]

[illegible] Blane with a special [illegible] of disease among the [illegible] Holland where no less than [illegible] Army were employed [illegible] which the medical officers [illegible] the island [illegible] the Admiralty in order [illegible] of a dock yard and [illegible] work [illegible] was not any real objection [illegible] possible [illegible] the same authority to be consulted [illegible] the Navy [illegible] special Inspection [illegible] for the [illegible] opinion held [illegible] has [illegible] upon him [illegible] free hand.

We [illegible] success. Plague may well [illegible] for [illegible] health [illegible] the [illegible] authence [illegible] publication [illegible] forbidden [illegible] of this epoch [illegible] time, as the severe epidemic of [illegible] 1814 [illegible] doubts on the efficacy of vaccination [illegible] some additions in 1820 by the [illegible] arranged for its gratuitous distribution [illegible] become moribund. As early as Sept [illegible] were directed to inoculate any of the [illegible] 1801 eighty nine naval surgeons [illegible] presented Jenner with a gold medal. It was [illegible] probably not until 1808—before vaccination was [illegible] Navy. Blane's opinion that cholera was spread [illegible] and his opposition to the view that it was caused by [illegible] expressed in his letter of January 16 1820 to the [illegible] of the East India Company. Later a year before the great epidemic of 1832 he issued A Warning, and Admonition to the British [illegible] on the subject of Indian Cholera which the Postmaster General the Duke of Richmond circulated [illegible] among the seaports, especially those on the East Coast in order to

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[illegible] Lond. 1819 [illegible]

[illegible] Medicum Naturae 1801 vol. [illegible]

According to the Instructions [illegible] Naval Hospitals [illegible] 1811 [illegible] 1816 [illegible] of this work. The Statistics [illegible] 1818 [illegible] circular recently issued in the [illegible] the results of the treatment on the entire [illegible] not [illegible] small pox or of prior [illegible]

Select Dissertations on Subjects of Medical Science 1811 [illegible] 346

prevent the introduction of the disease into this country. The Royal College of Physicians of London, in reply to a letter from Sir W. Pym on behalf of the Government, had previously stated that cholera was communicable and that quarantine was desirable; but there was a popular belief to the contrary, which, as may be seen in the contemporary medical press, was shared by some members of our profession. Unfortunately, this view was adopted by the Local Board of Health at Sunderland, where the quarantine and other preventive measures in force were accordingly abandoned. Almost directly after this change of policy, cholera began to spread from this town throughout the Kingdom, and by an irony of fate Lady Blane was an early victim on July 9, 1832.

In addition to his professional writings Blane published some observations on Naval tactics, particularly on Rodney's method of breaking the line, and brought out a pamphlet to show that corporal punishment in the Navy could not be safely abolished. He also contributed materials to Moody's Life of Lord Rodney. In 1831 his interest in human statistics found expression in a tract entitled "Reflections on the Present Crisis of Public Affairs with an Enquiry into the Causes of the Existing Clamours and Grievances, dealing with the best means not only of preventing famines but also of guarding against the evils of discontent and riot. The medical aspects of this subject, namely, "the progressive population and health of Great Britain" had previously been discussed by him.

As a writer he was clear, graceful, and anticipated possible criticisms; this was the outcome of the care he devoted to polishing, expanding, and keeping his writings up to date in their successive editions. For example, the collection of previously published articles entitled "Select Dissertations on Several Subjects of Medical Science" (1833 in one volume, 1839 in two volumes) contains references to works and events of much later dates than those of the original papers. The Elements of Medical Logick or Philosophical Principles of the Practice of Physick, first appeared in 1819 and in its third edition (1824) was much enlarged so as to make the whole assume the form of a compendious system of general professional instruction—an ambitious aim which it can hardly be said to have achieved. It discussed seven causes of error and insisted on the advantages of the inductive method of reasoning. Payne duly summed up "Medical Logick" as containing a good deal of common sense and some philosophic pulpitry. It was appropriately translated into German. As there are but few works on medical logic, it may be mentioned that A. W. Barclay's Lumleian Lectures at the Royal College of Physicians of London (1861)—"On Medical Errors" dealt with the fallacies connected with the application of the inductive method to medical science. Blane wrote on mechanical compression of the head as a preventive and cure of hydrocephalus, but his most important contributions to therapeutics were on the uses of pure alkalis and lime-water in disorders of the bladder, stomach and skin; and on the effects of large doses of the carbonates of potash in gravel. The veins of

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Med. Chir. Rev., London, 1832, vol. xvi, pp. 118. *Ibid.*

Trans. Soc. Improvement of Med. and Chir. Knowledge, 1800, vol. ii, p. 182.

Ibid., 1811, vol. iii, p. 338.

these observations was fully acknowledged by [illegible] authority on urinary diseases and according [illegible] Sir George) Burrows[4] the use of alkalis in urinary affe[illegible] and definite advance

He was most anxious to improve the professional [illegible] and position of naval surgeons, to which his name is now [illegible] in connexion with the two gold medals originally [illegible] two years for the best journals kept by them afloat but [illegible] 1913 given annually to the surgeon who obtains the highest [illegible] at the examination for promotion to the rank of staff [illegible] These he founded in 1829 by an endowment of £300, the [illegible] in 1832 the only occasion on which he adjudicated The great importance he attached to note taking set an example to naval surg[illegible] and stimulated Trotter[5] to imitate Dr Blane in calling upon the surg[illegible] occasional remarks The question whether or not naval surgeons should engage in private practice was discussed by him in 1821[6] In 1[illegible] the Board of Admiralty ordained that all medical officers of naval hospitals whether on war or peace should abstain from civil practice But only seven [illegible] before, in 1795 the Governors of Naval Hospitals had been directed to allow private practice in times of peace, so that this [illegible] stated by Trotter[5] would appear to have crept in very rapidly Blane however argued that as long as their official duties did not suffer naval surgeons would advantageously occupy their spare time by increasing their professional experience and stated that during his seven years service [illegible] the Medical Board of the Navy two instances only of abuse had come before him As an argument against the whole time system he stated that if any candidate for a vacant situation in the great Metropolitan hospitals were to try to recommend himself by declaring that he would devote his whole time and attention to the duties of the hospital he would to a certainty be rejected for the governors would be men of good sense and would be well aware that he could not find employment to occupy himself the whole day within its walls This is interesting in connexion with the recent report of the Royal Commission on University Education in London which contains evidence advocating and condemning the principle of whole-time teachers of clinical medicine It may be noted that by an order of November 28 1913 private practice by naval surgeons is now permitted That Blane was appreciated by the naval surgeons is shown by their presentation of plate to him in 1821 [illegible] however can hardly fail to make some enemies and reading between the lines of Trotter's Medicina Nautica it is clear that this less successful reformer of Naval medicine was far from a kindly critic of Sir Gilbert

Many honours were bestowed on Blane he was a Fellow of the Royal Societies of London, Edinburgh and Gottingen a Corresponding

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[4] Nature and Treatment of Urinary Diseases [illegible] 1874 p 144

[5] Gulstonian Lectures London Med Gaz 1831 vol xii p [illegible]

[6] Medicina Nautica 1797 vol i p [illegible]

[7] Select Dissertations on several Subjects of Medical Science 1844 vol i p 297

[8] Medicina Nautica, 1803 vol iii p 18.

Member of the Imperial Academy of St. Petersburg and of the Institute of France (1826) and an Honorary Member of the Royal College of Surgeons of England (1829), in succession to Sir Humphry Davy. In addition to the Court appointments mentioned elsewhere he was Physician to George IV and William IV. It is rather surprising that such a distinguished physician should not have held office at the Royal College of Physicians of London, of which he remained a licentiate to the end of his life. He was indeed, nominated for the Fellowship by the President (Sir Lucas Pepys) in 1810 but did not accept probably because this recognition came so late. His intellectual peers evidently valued his abilities, for he was President of the Medical and Chirurgical Society in 1813 and 1814 in succession to Sir Henry Halford, and was a Member of the select Society for the Improvement of Medical and Chirurgical Knowledge, which was founded by John Hunter, and nominated of nine members including Matthew Baillie, David Pitcairn, and G. Lordyce. Nearly twenty five years after Blane's death a grateful tribute was paid to his memory by Sir Alexander Armstrong, subsequently Director-General of the Medical Department of the Admiralty, who spoke of his inestimable services to the Navy, and said that he might "justly be termed the father of Naval Medical Science."[2] His portrait shows a handsome and thoughtful face, full of character. Natural curiosity about his personal traits may be gratified by a search in the somewhat candid medical press of the time. He appears to have retained the aspect and accent of a Scotsman throughout life and though much in polished society his manners were not those of the courtly physician of the period. In one of the fictitious "intercepted letters," entitled "Advice to a Young Land-in Physician" and intended to parody Sir Henry Halford ("the celebrated baronet"), Blane is credited with a "certain sanctified, devout, death like expression of countenance."[3] His obituary notice is therefore probably correct in concluding that "the station he attained may fairly be attributed rather to his talents and industry than to the possession of external graces or artificial attractions."[4] His health began to fail in 1831, when he was attacked by senile pruritus, which caused such distress that increasing doses of opium became necessary and reached the equivalent of a drachm of the solid drug in the twenty-four hours. Attempts to diminish this exceptional amount were unsuccessful, and in his last illness, in which he suffered from œdematous and ulcerated legs, the daily dose was sometimes 1,000 minims of Battley's solution. His remark towards the end of his life that "there was not a desideratum in practical medicine more important and

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Sir Thomas Lepage Bt., is Physician General of the Army Medical Department at the time of the disastrous Walcheren Expedition and when requested to proceed thither to investigate the local conditions, was so ill advised as to decline, with the result that immediately resigned his office.

[2] Observations on Naval Hygiene and Scurvy. 1858, p. 4.

[3] These intercepted letters were written by James Wardrop, M.D., Surgeon to George IV (see J. F. Clarke, Autobiographical Recollections of the Medical Profession, 1874, p. 340).

[4] *Lancet*, London, 1834, vol. i, p. 725.

London Med. Gaz., 1834, vol. xiv, p. 486.

[illegible] application. After [illegible] he began to [illegible] at his country home [illegible] 1834 in the [illegible] whither he had removed [illegible] portrait of him by Sir [illegible] of the Royal Colle[illegible] photograph [illegible] issued by the [illegible] 1860, [illegible] indebted to W. [illegible]ning, Esq.

[illegible]

[illegible]

Clinical and Practical Notes.

PRACTICAL EXPERIENCE OF APPENDICECTOMY AT SEA

By Fleet Surgeon SAMUEL H. WOODS, M.D., R.N.

A series of fulminating appendicitis unfortunately crop up [illegible] ships are far away from port and where operative [illegible] [illegible] the object of this paper is to bring to the notice of [illegible] some hints in dealing with such cases, which are the [illegible] experience in operating at sea on two cases of acute appendicitis [illegible] carried in the squadron to which I am attached.

It may be urged that the sick bays of ships where all kinds of septic cases are [illegible] are by no means ideal places for dealing with such [illegible] and that operative treatment should if possible be postponed till the arrival of the ship in port when the patient could be removed to hospital. There is a certain amount to be said in favour of those objections but on the other hand much valuable time may be lost and the patient's life endangered by temporizing.

It may not even be necessary to operate in the sick bay, the wardroom or the Captain's cabin might be used for this purpose and in the tropics it is always possible to rig up a temporary theatre on the upper deck. As regards this latter point I should like *en passant* to pay a few words of tribute to the skill and ingenuity of a late and much lamented colleague—Fleet Surgeon A. A. Forrester—whom I had the pleasure of assisting at one of these operations at sea on passage home from Australia, and to whom the writer is much indebted for many valuable hints. He had erected on the upper deck of his ship—a small light cruiser—an almost perfect temporary theatre by screening off a large area just before the wind room. This area was well lit by an overhead cluster and as the temperature of the external air at the time was about 82° F. there was very little risk to the patient from exposure. Further, he had the advantage of operating in an almost germ free atmosphere.

As regards the disease itself the diagnosis in those fulminating cases presents as a rule very little difficulty but the prognosis becomes proportionately worse the longer the operation is postponed.

No opportunity should therefore be lost in acquiring the necessary knowledge of how to deal with these cases and it well repays one to pay an occasional visit to the dissecting room and study the anatomy of the vermiform organ. It should be remembered that a very common place to find the appendix is tucked away either in a retro caecal pouch or curled round the lower and outer side of the caecum in a paracaecal or pericolic pouch. The text books almost invariably give the 1 o'clock position—i.e. pointing upwards and inwards towards the spleen under the termination of the ileum—as the commonest position of the appendix and hanging down over the external iliac vessels into the pelvis as the next most common one is therefore apt to overlook these

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An operating theatre is now provided in all the new large ships.—[Ed.]

other positions when forcing the anterior crania downwards. Further, the mesenteriole in a great number of cases only extends half way down the organ and it is generally shorter than the portion of the appendix that it embraces, hence the kinking that frequently occurs. In one of my cases there was a distinct kink at the termination of the mesenteriole and the distal portion of the appendix was gangrenous due to interference with the blood supply at the kink.

One more point as regards the anatomy (which I shall allude to presently) is the position of the appendical orifice as described by Lenz. According to him it can be represented on the surface of the body by placing the finger on the junction of the right lateral and medial thirds of a line connecting the two anterior superior iliac spines.

Before dealing with the actual operative technique adopted in these cases, there are a few points to be considered in reference to the preparations necessary before commencing the operation. These remarks apply especially to ships of this squadron.

Minor Defects in the Operating Table Supplied

(*a*) The legs of the table are rather short and one holds the chest of this in cases where the operation is prolonged. This defect can easily be remedied on board by the ship's staff to suit the requirements of the operator.

(*b*) The joints in the centre of the diagonal struts which stiffen the legs are not very strong. These joints should be stiffened by wire bindings and secured to the deck. The legs of the table should also be firmly secured.

Lighting Arrangements

In order to provide for plenty of light a cluster light should be rigged overhead in such a way that it can easily be moved along a light wire. A portable light is also desirable in abdominal operations.

Sterilization of Dressings &c.

In this ship—and presumably the same applies to the other ships of the squadron—no steriliser for dressings has been supplied. To get over this deficiency and to provide for a good supply of sterilized dressings I made use of the steam press in the galley which in the ordinary way is used for steaming puddings, potatoes &c. This press is about 2½ ft. by 1½ ft. by 2 ft. in cubic capacity, is capable of standing a pressure of 20 lb. of steam and is fitted with five movable trays on which the bundles of dressings &c. could be laid.

This press was thoroughly scrubbed out with a strong solution of caustic soda, the trays scraped and scrubbed with the same solution and was then ready for use. The dressings, operation gowns &c. were arranged in separate bundles covered externally with sheets folded and placed on the trays of the press. Sterilization was continued for one and a half hours and the bundles were then removed from the press. I found that this process worked very well and in proof of its efficacy the appendicostomy wound healed by first intention.

Needles, Ligatures and Sutures

It is most desirable to have the needles—both intestinal and those needed for the peritoneum &c.—threaded beforehand. The reasons I allude to this are —

(a) The [illegible] in the ships of this squadron [illegible] regular sick berth staff [illegible] commissioned ships [illegible] never before seen an appendix operation and [illegible] little about asepsis hence the duty [illegible] to them the [illegible] attending to the needles and it does not follow that either the surgeon or his assistant has to see to this which [illegible] to the length of the operation

(b) The ligature [illegible] nature material in the small bottle usually sealed Bovril tablets, supplied to the ships of this squadron is folded up so much that in the hurry of threading needles it is very likely to get knotted and knotted

(c) In the operating cases supplied to ships of this squadron no intestinal needles have been included and even the smallest of the pattern supplied are not very suitable for sewing the peritoneal collar over the appendicial stump

I found that ordinary sewing needles would answer this purpose very well but the eyes should be tested beforehand to take the fine silk in the bottom hole which is well suited for closing off the peritoneal collar and for holding together the edges of the peritoneum in the abdominal wound

Technique of the Operation

In dealing with the operative procedure to be adopted in these cases opinions differ much Some surgeons are strong advocates of the gridiron operation whilst others are equally resistant on the advantages of the right rectus route

Whilst attending the clinical practice in the Gynæcological Department of the Royal Albert Hospital, Sydney I was much impressed by the ease and facility with the Surgeon Mr L Tiring F R C S in operating on cases of right pyosalpinx was able to deal with the appendix through a right rectus incision He almost invariably removed the appendix in such cases and it occurred to me that such a method of approach would be most suitable in cases of emergency and especially as at sea where hospitals are necessarily experienced

As regards the main details of the operation the incision employed is a vertical one (about 3 in long) so planned that the junction of the middle and inner thirds passes through the point of Lanz which has already been allotted to there need be no anxiety as to injury of the bladder if the patient has been instructed to pass urine before

It will be found that this incision will lie just over the outer part of the right rectus sheath and when its anterior layer is cut through the rectus muscle can easily be pushed inwards and the deep epigastric vessels seen and avoided The edge of the semilunar fold of Douglas will now be exposed in the upper part of the floor of the wound and the fascia transversalis in the lower part These should be divided and the adjacent extraperitoneal fatty tissue and peritoneum incised in the whole length of the incision The abdominal cavity having been opened in the upper fix can as a rule be easily found in one of the positions mentioned by Tiering lower the anterior fascia The organ can be felt with either by the finger method or by invaginating the stump in a purse string suture passed through the serous coat The abdominal wound should then be closed layer by layer and as a rule no drainage is necessary

The objection to the gridiron method is that it is a most difficult operation to perform in the absence of a skilled anæsthetist (in both of

[illegible] in all cases the [illegible] by contracting [illegible] muscles adds to the difficulty and length of the operation [illegible] cases of appendical abscess where it is necessary to [illegible] tube the gridiron operation is open to the objection that at the spot where the tube is embraced by the above mentioned muscles its lumen will be constricted, and the free discharge of pus, &c along the tube interfered with In regard to this latter point, I can well remember a case in which this occurred, and where it was necessary to make a counter opening in the loin to drain an appendical abscess cavity

AFTER-TREATMENT

No food was given by the mouth for three days the patient only being allowed to sip very hot water to quench thirst I found that the distressing paroxysms of "wind" that these patients often suffer from could be best avoided in this way Calomel ½ gr, followed by soda sulph 1 dr aq ad 1 oz every hour for three hours, was given on the morning of the fourth day when the bowels were well moved weak tea and citrated milk were given The diet was then gradually increased and on the sixth day the patient was taking a little bread and butter and boiled fish

In gangrenous cases it is well to adopt Fowler's position, but not to the extent of putting an undue strain on the sutures absorption is thus reduced to a minimum I also found that two service swimming collars lightly inflated and joined together by their narrow ends, made an excellent air cushion for these cases

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APPENDICITIS IN THE ROYAL NAVY APPENDICECTOMY AT SEA

By Fleet Surgeon W H S STALKARTT M D F R C S Ed, R N

The incidence of appendicitis in the Navy is by no means low The following are the numbers of cases and sequelæ arising from this affection operated on in the various Royal Naval hospitals and the hospital ship "Maine" during the four years from 1910 to 1913 taken from the official statistical reports for those years —

	1910	1911	1912	1913
Haslar	50	71	69	69
Plymouth	17	25	33	36
Chatham	17	31	33	40
Portland	13	19	9	21
Haulbowline	1		1	1
Deal	—	4	8	1
Cape of Good Hope		3	4	—
Malta	10	13	13	28
Gibraltar	1	5	7	3
Hong Kong	6	1	1	10
R F A "Maine"	1	[illegible]	13	16
Weihai Wei	1	—	1	2
Yokohama		—	—	1
Queenstown		—	1	2
Bermuda	—	—	1	1
		—	—	—
Totals	130	189	145	10

Appendicitis is thus shown to [illegible] the Royal Navy and one would almost expect that [illegible] save treatment would often occur in men of war [illegible] hospital ashore for treatment was available In my [illegible] during twenty five years in the Royal Navy a very considerable [illegible] of which has been spent in ships and under varied conditions [illegible] and in various climes (the West Coast of Africa, Zanzibar [illegible] South east Coast of America East Indies Station, Cape of Good Hope Station, and China Station) the case mentioned here is the only instance where I have had to operate on board ship from urgency I can recall few cases of appendix trouble and none of serousness

It would be of interest to learn the experience of other medical officers, and how frequently operation has been performed on board ship under conditions at sea. No doubt this would be found to be fairly often The amenities of the ordinary sick bay on board can scarcely be said to appeal as an ideal aseptic operating theatre to anyone accustomed to the conveniences in a modern hospital The sick bay is used for patients to live and sleep in cots—and hammocks if necessary—being slung there Patients are seen and examined, and wounds are dressed there of necessity whether septic or otherwise The sick berth staff in many cases live and feed and often also sleep in the sick bay In fact everything pertaining to the treatment and nursing of patients and often the dispensing or making up of prescriptions, is done there, and in addition the sick bay is a living room for patients who are on the sick mess However modern ships such as the newest battleships have a separate operating room dispensary and mess for sick berth staff Further the dust when steaming and after coaling has to be taken into consideration, as well as the discomfort of an unsteady platform, varying with the roughness of the sea Notwithstanding such disadvantages the best results may be obtained in surgical work

Appendicitis at Sea

A stoker reported himself on September 7 1914 complaining of nausea and acute abdominal pain At the time the ship was cruising in the Java Seas to the north of the Dutch East Indies

The patient presented the signs of acute appendicitis with rigid abdomen especially on the right side with pain near the appendix region Tenderness was marked particularly rather low down in the right iliac region Operation was decided on as soon as possible While preparations were being made an increasing pulse rate and elevation of the temperature were noted these points with the local abdominal signs being pathognomonic as regards the necessity for immediate operative procedure The McBurney or gridiron incision was employed for several reasons (1) As the case was acute freedom from extensive adhesions would be expected (2) the most tender area was low down in the iliac region which pointed to the probability of the appendix being situated towards the pelvis and in the iliac region

On opening the peritoneum some opalescent effusion escaped The appendix was found much matted together with omentum old omental adhesions extending all round its base and nearly to the apex where the adhesions were fresh The appendix was directed down over the brim of the pelvis A considerable mass of adherent omentum was tied

if by [illegible] entire appendix. The apex [illegible] only on the point of perforation. [illegible]

Sinus [illegible] ero purulent discharge was very [illegible] Progress was entirely satisfactory [illegible] only a small superficial sinus [illegible] On September 17 (the tenth day) the patient [illegible] the military hospital at Singapore at [illegible] proceeding again to sea indefinitely [illegible] having taken passage by a steamship. The [illegible] and the man resumed his duties on board.

The main diagnostic signs of [illegible] were present in this case. The old omental adhesions [illegible] recalled former attacks. The most tender area will often indicate [illegible] the appendix may be lying [illegible] the position of the incision best suited [illegible]

APPENDICECTOMY ON BOARD

By THE MEDICAL OFFICER [illegible]

(Received from [illegible])

The following case is recorded [illegible] experience may be of use to other naval medical [illegible] confronted with the same situation.

An able seaman Royal Fleet Reserve [illegible] was on the sick list on the ship from January 24 to [illegible] 1913 suffering from a furuncle inside the left nostril [illegible] constitutional manifestations were out of all proportion [illegible] of the nostril indicative of [illegible] This [illegible] after his return to duty [illegible] all the clinical signs of [illegible] As the [illegible] of a consultation it was decided to [illegible] was owing to the heavy sea which was [illegible] and the [illegible] the opinion of the Captain [illegible] hospital ship for many hours.

The abdomen was opened through [illegible] which was found adherent to the [illegible] suspected prior to operation [illegible] appendix was acutely inflamed [illegible]

The subsequent progress was [illegible] and the [illegible] transferred to the hospital ship [illegible] the [illegible] operation.

COMMENTARY

(1) Preparation of the patient was [illegible] personally by a medical officer. Owing to the tumour felt [illegible] it was not considered advisable to give an enema.

(2) *General Preparations.*—The sterilization [illegible] was not [illegible] enough for such an operation but although [illegible] of stock necessitated delay the relatively high [illegible] than compensated for this. Already sterilized dressings [illegible] sterilized afresh. Towels were boiled and used [illegible]

were boiled and used as abdominal cloths no [illegible] or other suitable material being available Horsehair and silk sutures were sterilized by boiling, and all trays and bowls were boiled in a large fish kettle in the ship's galley All solutions were made with freshly sterilized water Gowns were baked in the ship's galley oven but this sterilization could not be relied upon and precautions were taken during the operation to keep the sleeves well rolled up Rubber gloves were sterilized by boiling These gloves were purchased shortly after the outbreak of war, and we attribute the success of the operation largely to this step

All patients and unoccupied cots were removed from the sick bay, the forward part of which was screened off by sheeting

Extra Lighting — A [illegible] yard arm group was rigged over the operating table giving a highly satisfactory illumination

Heating — A temperature of 60° F was all that could be maintained as only two Bastian electric radiators were available

PROMINENT FACTS

(*a*) The sterilizing apparatus was insufficient for an operation of this character The fitting of autoclaves in ships generally with steam supply from the engine room would obviate this difficulty

(*b*) The lack of silkworm gut for skin suturing was greatly felt, as the horsehair used would have cut through had any distension supervened

(*c*) The need of towel clips and aseptic gauze was felt

(*d*) Twelve fold gauze was used on the Skinner's mask in lieu of the flannel covering provided We are of opinion that pituitary extract would be found very useful as an anti shock measure

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NOTE ON THE FIRST NAVAL WOUNDED TRANSPORTED FROM THE DARDANELLES IN THE R.N HOSPITAL SHIP "PLASSY"

BY FLEET SURGEON MONTAGUE T B RODD R.N
Senior Medical Officer
AND
SURGEON T S HEANEY M.D., F.R.C.S.(Edin.) R.N.V.R

THESE observations were made while the patients were *en route* from Malta to Plymouth on board the "Plassy" They were embarked from Royal Naval Hospital, Malta on March 31 and discharged at Plymouth on April 8 The cases are interesting as showing the usual conditions which require treatment a few weeks after wounds are actually received They had previously been under treatment for periods ranging from two to five weeks and many of them had already undergone operation either on board their own ships, in the hospital ships or at the Mediterranean base hospitals

Causation — Among sixty cases concerned this was as follows —

Shell wounds	43
Bullet wounds	13
Accidents in abandoning ship	3
Shock from gun fire	1
	60

Injuries affected were as follows —

Soft parts only	11 cases
Bone (compound fracture)	18
, (simple fracture)	
Joints involved in	6
Nerve lesions in	1
Eyeball destroyed in	1
Viscera, lung (2) kidney (1)	3

Complications on Admission —

Wounds had healed in	1 cases
Wounds clean and granulating in	16 "
Suppuration in	10 "
Cellulitis in addition to suppuration in	3

The approximation and alignment of the fragments in cases of fractured bones were as a rule defective owing to the more urgent necessity of treating suppurating wounds in the adjoining soft parts. Some improvement in results in such cases might be obtained by using in the earlier stages the splints for compound and suppurating fractures recommended by Mr Robert Jones

Better results in the case of fractures into the elbow joint might perhaps be obtained if the position of acute flexion, also advocated by Mr Robert Jones were adopted, but it is, of course impossible to draw any general conclusions from the few cases under report

As regards the avoidance of sepsis an interesting and successful case is the following A ship's cook aged 38 of the Eurydice, was struck near the ankle by a shell fragment with explosive effect The bones were shattered just above the ankle joint, and the soft tissues in the neighbourhood were much lacerated Ten hours after the occurrence an anæsthetic was administered and the parts were cleansed and swabbed with pure carbolic acid by the staff surgeon of the ship The case ran an aseptic course and at the time of admission to the Plassy healing was almost complete

Operations on Board

The ship was almost continuously under way and none save urgent operations were undertaken Ten operations were performed, the indication in each case being abscess formation cellulitis or defective drainage When the cause of suppuration or abscess was a foreign body and where the position of the latter was accessible the foreign body was removed

Under this heading an interesting case may be mentioned An A B, aged 30 received on March 18 a punctured shell wound on lower part of the side of the left thorax He was admitted to the hospital ship Sondon on the same day While there blood and organisms were found in the urine. At Malta Hospital X ray examination showed a shell fragment in the neighbourhood of the diaphragm on the left side On admission to the Plassy on March 31 hematuria was present and later pyrexia and rigors developed A perinephric abscess was diagnosed

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[1] "Injuries of Joints" by Robert Jones C M I R C S I & I p 99 (reviewed in present issue p 113) [Ed]

[illegible] operation, the lower pole of the kidney was found to be healthy. I found the upper pole was a collection of fluid, a mixture of blood, urine and pus. The fluid was under considerable tension, and escaped with a rush. There was a large wound at the upper part of the kidney, and the suprarenal body was lacerated. The shell fragment (1 in. by ¾ in.) was found embedded partly in the suprarenal tissue and partly in the left crus of the diaphragm. There was no sign of fresh bleeding from the kidney. The *hæmaturia* was therefore probably due to blood washed from the abscess cavity into the renal pelvis laid open by the kidney wound.

It was decided *not* to remove the kidney. A drainage-tube was inserted. Temperature had fallen and blood almost disappeared from the urine when he left the ship.

Other Treatment.

Apart from operation treatment consisted of cleansing and dressing wounds, massage and passive movement in suitable cases, and general medical supervision.

The dressing found most effective in suppurating cases was a pad of gauze moistened with weak carbolic lotion (1 in 100) and covered, not with waterproof, but with cotton wool. Cases which had freely suppurated and developed unhealthy granulations under hot and waterproof cleared up under the more absorbent dressing mentioned above. Since then even better results have been obtained with gauze soaked in Wright's salt and citrate solution. Advantage was taken of a few hours' wait at Gibraltar to make X-ray examinations, where necessary for diagnostic purposes.

NOTE ON 'YOOURT.

By Surgeon JOHN T. D. S. HIGGINS, M.B., R.N.

I MADE the acquaintance of 'yoourt' as a useful help towards messing within a few days after my arrival in the Eastern Mediterranean during April 1915, and also have been much struck with its therapeutic value. It is identical with Metchnikoff's "Bulgarian sour milk," 'yoourt' being the usual Turkish name. It was made locally and cost about 1d. per bowl of the size of the seaman's mess bowl. It is of the consistency and appearance of ordinary junket and is quite palatable either alone or with the addition of jam or sugar.

'Yoourt' was first given by me to Turkish prisoners who had dysentery and was found to be good. Later in the *British Medical Journal*, read one afternoon when visiting a ship I found a similar preparation recommended as having been found very good by the Germans in dealing with a great number of cases at a special dysentery hospital for troops which they had been compelled to establish in one district. In fact it was mentioned as being the only treatment which did good in many cases.

As it was quite convenient for me at our station I used it in all cases of dysentery and diarrhœa. It was also given to other convalescents and

Brit. Med. Jour., March 20, 1915. Dysentery in the German Army.

[illegible] cases, as well as a lactic cheese made [illegible] having to solidify the dysenteric and [illegible] stools [illegible] to quite an excellent curative. The [illegible] was [illegible] Six cases of well [illegible] dysentery [illegible] with temperatures ranging from 100° to 101° [illegible] and all with [illegible] evacuations had only a total of twenty six days [illegible] in contrast to yoghurt and yoghurt cheese combined [illegible] (1 qt.) for a few days.

Professor Mitchell's [illegible] is believed to consist simply of powdered and [illegible] An officer who had lived in the Near East previously [illegible] that "lactobacillus" [illegible] of his children of [illegible] He had been almost despaired of and in whom other treatment had proved of no avail in treating the disease.

Yoghurt suggested itself to me as a very good diet for convalescents such as typhoid in a stage when more solid food would be unhelpful. It is good food in a convenient form. It would seem that it might also be of great benefit in cases of summer diarrhœa and might help to keep down secondary organisms and putrefaction in cases of gastric and intestinal cancer.

PREPARATION

Although this is or was a few years ago well known in England I was ignorant of the process, and intended to obtain an accurate account of it before departure from the locality in the Near East where I was stationed. The following outline is given. I regret that I cannot vouch for its correctness in detail.—

The ferment or fermenting agent being been obtained a little is added to the fresh milk. This is then warmed to 37° C. for about ten minutes and then allowed to cool and become congealed. This is the yoghurt. A little of the yoghurt kept over is added to a fresh milk next day, and is sufficient to repeat the process, which can thus be continued indefinitely. The original fermenting agent is believed to be obtained by heating some milk in a saucepan containing a small piece of the lining of a sheep's stomach. In a French master's medical [illegible] yoghurt was included, it was stated that this fermenting agent contained a diplococcus.

OPERATIVE SURGICAL WORK IN THE R.N. HOSPITAL SHIP 'DRINA,' WITH NOTES ON INTERESTING CASES.

By Staff Surgeon R. T. WILLIAM MYO, M.B., M.S., L.R.C.S., R.N.V.R.
(Officer in Charge)

Honorary Assistant Surgeon and Lecturer on Clinical Surgery to the London National Infirmary, Newcastle-on-Tyne. Demonstrator of Surgery, Edinburgh Durham University.

During the past twelve months that the R.N. Hospital Ship Drina has been in commission 180 surgical operations have been performed with two deaths.

Of this number I have operated upon 112, with one death. My fatal case was in a boy with acute epiphysitis of the upper end of his humerus with pyæmia. He died from general pyæmic deposits, several of these being opened as they appeared.

The work has been spasmodic for the months of May, July and the

[illegible] 1915, accounted for 85 operations out of my total [illegible] analysis of these operations is given at the end and, as will [illegible] greater number are trivial ones

The following [illegible] a few of the interesting surgical cases I have had under my care

Case [illegible] Depressed Fracture of Vault of Skull Craniotomy

D W [illegible] Admitted January 18 1915 suffering from a [illegible] injury [illegible] two days previously while at work he fell a distance [illegible] to his head striking the head and right arm He had a scalp wound on the left side of the head he was concussed but rapidly recovered but he could not move the right arm, he could not close the right eye and there was difficulty in mastication owing to the blood collecting between the right cheek and the alveoli No bleeding from nose or ears A doctor sutured up the scalp wound and this quickly healed He had not had any fits The facial paralysis recovered gradually, and the power in the right arm slowly returned He stated definitely that no bruising of the arm or shoulder was ever seen

On admission, there was a healed scar on the scalp 1 in long in front of the left parieto occipital area and not far from the middle line At this situation there was a hole which would accommodate the tip of an index finger [illegible], there was a healed compound depressed fracture of this portion of the skull His right hand grip was weak there was anæsthesia of the skin over both ventral and dorsal aspects of the right middle and ring fingers also on the ulnar aspect of the right forearm Nothing abnormal was found in his 2nd 3rd 4th 5th 6th, 7th 8th 11th and 12th cranial nerves His sight seemed normal, but the degree of vision was not ascertained The knee jerks were normal

On January 20 I trephined him The depression in the cranium would have easily accommodated a walnut, the inner table being fractured and depressed for twice this area The outer table was sunk [illegible] below its ordinary level this dura mater was lacerated and bone splinters were lying on the pia mater The depressed area of bone was elevated and removed I did not think it advisable to replace any portion of it as old fragments of dirt and hair were embedded in the bone There was some oozing from the diploic tissue therefore a piece of gauze was placed against the bone, the end being brought out at the posterior margin of the wound He made a good recovery and left the hospital ship with a normal hand grip the degree of skin anæsthesia was less but it had not completely recovered

The case was a good illustration of the invaluable surgical principle of always thoroughly investigating every scalp wound before suturing it up Had this been done in the first instance the compound depressed fracture would have been discovered It is extremely doubtful if the arm injury ever existed, it almost certainly was the direct result of the fractured bone fragment pressing on the cerebral motor centres

Ruptured Duodenal Ulcer Suture only

G W aged 28 was admitted on August 7, 1915 with a history of having had, twenty four hours previously a severe attack of upper abdominal pain which doubled him up and which made him think he was going

[illegible] felt as if he could [illegible] in the right shoulder [illegible] with a cough [illegible] previously he had [illegible] with [illegible] whatever to his [illegible]

[illegible] this before he had [illegible] an attack of fever [illegible] of epigastric [illegible] medicine [illegible] injury he stated [illegible] the day or night [illegible] pain [illegible]

On inspection his [illegible] shallow respiration [illegible] the whole interior [illegible] gall bladder [illegible] sounds and knee [illegible] normal. No [illegible] No lesions [illegible] the urine was 1018 [illegible] there was no [illegible] albumen.

[illegible] appetite [illegible] nothing but [illegible] constantly vomited.

[illegible] absence of indigestion [illegible] exclusive [illegible] of [illegible] while the [illegible] and glycosuria exhibited an hour [illegible]

[illegible] sudden pain and [illegible] inching his [illegible] intensity [illegible] that the focus was [illegible] inferior surface of the right half of the diaphragm. The [illegible] lower [illegible] followed by [illegible] intense pain which [illegible] suggested the presence of gall stones [illegible] gall bladder. [illegible] the preliminary low [illegible] pain [illegible] result of a gall [illegible] impacted in the neck of the gall bladder [illegible] with secretion and [illegible] gangrenous and had ruptured into the general peritoneal [illegible]

At the operation [illegible] the first part of the incision was [illegible] by interrupted sutures of silk. The sealing of the [illegible] cavity was [illegible] irrigated. There was [illegible] the gall bladder [illegible] this had [illegible] shoulder pain and painful respiration [illegible] tube.

At the conclusion of the operation [illegible] containing an ampoule of pituitary [illegible] cutaneously into each axilla. There was [illegible] near the exit of the tube, but this was [illegible] removed on the twenty-[illegible]

In the after treatment for the first [illegible] of boiled water to drink every hour and [illegible] were injected into the rectum every [illegible] he had 5 oz. of a mixture of equal parts [illegible] every hour the solution being first sterilized in [illegible]

age heaten up during the [illegible] In fourteen days after the operation he would be ready [illegible]

His recovery was uninterrupted [illegible] left the ship, twelve days after operation, he was [illegible] recovery

Appendix Abscess [illegible] and Drainage

W H aged 49, was [illegible] 1915 complaining of epigastric pain vomiting [illegible] He was employed upon a tug boat and had been in [illegible] attention until just before his admission

Five days previously he had [illegible] epigastric pain the onset being gradual the pain was not severe and never localized to the right iliac fossa Shortly after onset he began to vomit, and this persisted at intervals up to the time of admission From his description it was bilious in character was not offensive nor was there any trace of coffee grounds nor of fresh blood He felt hot and feverish Up to the time of onset his bowels had been quite regular and his motions had been normal after the onset he had extreme constipation and although he had taken 3 oz of castor oil and other purgatives passage of flatus was the only result There was an absence of spasmodic pains and of intestinal rumblings No history of indigestion No pain nor frequency of micturition Thigh flexion did not give any ease He had never had any illness previously

On admission he looked very ill pulse rate 120, temperature 102 6° F tongue dry furred and hard Urine normal

Examination showed his abdomen to be distended and with fine fluid in both flanks The hernial sites ordinary and extraordinary were normal He had marked rigidity of the abdominal wall muscles especially over the right iliac fossa A tender mass could be felt in the latter region it was resonant on percussion A rectal examination showed nothing abnormal The urine was normal

The absence of previous digestive trouble hæmatemesis and melæna was against a ruptured gastric or duodenal ulcer The absence of spasmodic pain and intestinal rumblings with the successful passage of flatus were against intestinal obstruction The absence of pus in the urine and of urinary symptoms was against a *Bacillus coli communis* infection of the urinary tract

The sudden onset of the illness with the sequence of pain vomiting and elevated temperature suggested acute appendicitis the acutely tender mass in the right iliac fossa, with overlying muscular rigidity, confirmed this

With regard to the situation of the inflamed appendix and its abscess (a) The absence of urinary frequency and pain or of diarrhœa excluded a *pelvic* position (b) the absence of thigh flexion excluded an inflamed appendix *lying on the psoas muscle* (c) the absence of (a) and (b), with the presence of a tender mass dull on percussion where the dullness is continuous with the high dullness excluded an appendix abscess *lying on the colon or ileum of the cæcum* (d) the presence of a right iliac fossa tumour which was resonant on percussion and without thigh flexion indicated that *the abscess was behind the cæcum* Therefore a perforated appendix lying in an abscess situated behind the cæcum was the diagnosis made

To know exactly where the appendix is to be found is a great aid in operation. Thus for an appendix lying in the pelvis the incision is made farther forward; for an appendix lying on the outer side of the caecum the incision is made farther back towards the flank.

I always use the oblique muscle cutting incision recommended by Professor Rutherford Morison, i.e. a long skin incision, a shorter one through the external oblique with a still shorter one through the deep muscles and peritoneum. This gives plenty of room, the surgeon can see exactly what he is doing and out having to work in the dark, provided the abdominal wall is properly sutured in layers, the risk of a post-operative hernia is a small one.

The condition was found as diagnosed. The appendix had completely sloughed off its caecal attachment and though lying quite free from the bowel it was still maintaining its normal blood supply in the arteries in the mesoappendix as intact. Two strongbiliths made lying free in the abscess cavity, which was really a collection of liquid faeces which had escaped through the lymphatics in the caecum. Closing the hole was a matter of no small difficulty. In there was no stump to ligature and the caecum was so friable that the sutures would not hold. By means of a well placed purse-string suture and by securing an adjacent piece of fat, together with the stump of the vermiform appendix over the site of the purse-string suture, the closure was made secure. The cavity was drained by a large tube and the abdominal wall was sutured in layers, the tube being brought out through the posterior end of the incision.

He did well but there was infection of the wound. When he left the hospital four days later it was still discharging freely but there was no sign of any faecal fistula. It not unlikely contributed in view of the pathological condition of the caecum that he was very distressed until the end of the week after the operation.

It was a difficult emergency case where a negative drainage for the contents of the caecum had a free exit to the peritoneal cavity. I must say for his success he became shut off by adhesions.

Strangulated Congenital Inguinal Hernia with Evidence of Previous Attacks of Strangulation. Herniotomy and Radical Cure.

T. B., aged 20, was admitted on July 7, 1912, complaining of acute abdominal pain at the umbilicus persistent for two days, followed by the right groin. Three hours before admission he had felt a sudden pain in the right groin and upon examining himself found that there was a hard swelling in the right side of the scrotum and groin. The pain was agonizing and he vomited within half an hour of his first symptom. He stated emphatically that he never previously had a groin swelling of any kind.

Examination showed the usual signs of a right strangulated scrotal hernia. The right testis could not be distinguished.

Herniotomy, followed by radical cure of the hernia was performed. The sac contained small bowel in good condition and omentum. A modified Bassini operation was done the stump of the sac being sunk behind the deep muscles of the anterior abdominal wall (Morison's first method) and the external oblique tendon was double-breasted, waistcoat-wise, the cut margins of the tendon were sutured in an overlapped position. The wound healed by first intention.

The pathology was interesting [illegible] he had never previously noticed a [illegible] had descended fully to the bottom of the [illegible] strangulation. I diagnosed a congenital herniation [illegible] with the tunica vaginalis. This herniation was [illegible] tunica vaginalis the sheath [illegible] cation [illegible] she was narrowed and this obstruction [illegible] adherent omentum. This adherent omentum [illegible] must have had a previous attack of the strangulation [illegible] itself but that resulting in inflammatory extension [illegible] the omentum.

Strangulated Femoral Hernia

P. O'N., aged 55, admitted July 11, 1891. [illegible] the groin of one week's duration. He had had a [illegible] hernia (both sides) some years ago.

Like the majority of recurrent [illegible] after [illegible] he was found to be burdened near the pubic [illegible]

At the operation a sliding [illegible] portion of the colon had slid down with the hernia [illegible] had the appearance of being fixed to the [illegible] of the intestine is therefore doubtful [illegible]

To those surgeons who [illegible] is apt to be a concern [illegible] open the bowel or seriously [illegible] endeavour to find the peritoneal sac. [illegible] wise the operation is described in the [illegible] up by first retention.

Varicocele. Excision. Cure.

H. R., aged 22, admitted [illegible] caused an aching pain [illegible] individual veins [illegible] fascia and herded [illegible] The importance of the scrotal [illegible] realized by some surgeons [illegible] cure for varicocele is by [illegible] all the veins together with the [illegible] obstructs the veins return of the [illegible] becomes functionless. All the veins [illegible] provided the continuity [illegible] for the small veins in the [illegible] venous return. The wound healed [illegible]

Hydrocele. Radical Cure. Vaginal [illegible]

G. H. W., aged 11, [illegible] right-sided hydrocele of the tunica [illegible] months and it had [illegible]

An oblique incision [illegible] sparmatic cord, the [illegible] abdominal ring. External pressure applied [illegible] of the right

side of the scr[illegible] wound. The [illegible] margins of the [illegible] prevent its rosing[illegible] in the scrotum [illegible] turned about 12 [illegible] was considerable [illegible] mild infection is [illegible] this is present the [illegible] upon to heal [illegible] intention. I believe [illegible] such a thing [illegible] is exposed the [illegible] the time [illegible] long to sew up [illegible] because the scar [illegible] tion. [illegible] vessels which might [illegible] autopsy.

Tuberculosis [illegible] Cystoscopy

H. C., aged 28, [illegible] under the care of Surgeon Stream [illegible] from the frequency of micturition [illegible] times by day and having [illegible] two to three times at night. During the [illegible] of micturition and the last [illegible] fresh blood. Three years ago he had a [illegible] sounded for a vesical calculus [illegible] than he had [illegible] oftener than he should do and [illegible] on at times [illegible] He had not had any real pain.

I cystoscoped the case and [illegible] of the report [illegible] shows a very large left sided [illegible] due to the [illegible] urine behind this orifice is [illegible] the diagnosis [illegible] cystitis with tuberculous left kidney.

"The diagnosis of tuberculosis [illegible] from the [illegible] nodules in the *right* lobe of [illegible] prostate gland. The cystoscopic evidence is only that of an [illegible] *old* communis [illegible] which would mask the tubercles and prevent them being seen by the cystoscope.

"The ureters will have to be catheterized to ascertain the extent of the mischief with a view to a nephrectomy if the lesion is unilateral.

As is now well known, vesical tuberculosis is a great rarity, and tuberculous ulcers in the bladder must always be regarded as being secondary to a renal infection.

As the case could not remain long enough on board for it to be fully investigated, I made no attempt to commence this.

My routine for such a case is to (1) have some deposit from a three hours' collection of the urine injected into two guinea pigs, and keep one of five weeks kill them and examine for tubercle; if this [illegible] then (2) catheterize both ureters and inject the deposit or urine from each kidney into four guinea pigs (two for each kidney) also examine the urine chemically and microscopically. (3) (a) If the kidney on the sound side is free from tubercle and is functionally capable of [illegible]

[illegible] work the diseased kid[illegible] the kidney of the [illegible] capable of doing the [illegible] (c) if both kidneys are [illegible] the most diseased one should [illegible] portion of as much of the d[illegible] opinions merits

[illegible] long routine out only [illegible] patient [illegible] best conditions during th[illegible] the full t[illegible] if he is not good, he will [illegible] health [illegible] patient cannot [illegible] of the [illegible] causes or because the [illegible] health is losing ground [illegible] at the present) cannot [illegible] by the cystoscope [illegible] one invariably found [illegible] both ureteric orifices [illegible] ation is thus given [illegible] the affected kidney [illegible] rest and diet for a few [illegible] if any men[illegible] the front each [illegible] ureteric catheter [illegible] specimen for the pelvis [illegible] into urine separately [illegible] all the sound kid[illegible] ureteral urine containing [illegible] per cent of albumen [illegible] from the diseased kidney as normal [illegible] and remove the diseased.

Bacteriological difficulties in the [illegible] of tubercle bacilli in urine are great [illegible] with the other [illegible] this especially applies to females. In some instances [illegible] that bacilluria proved to be due to the disease [illegible] to the [illegible] tubercle bacilli in other [illegible] the [illegible] was really present, the organisms could not be [illegible] to trust to the cystoscope catheter [illegible] the [illegible] making the diagnosis and decision [illegible]

Transverse Myelitis [illegible] Otto S. Diamond

A S[illegible] aged 90 was admitted May 10, 1[illegible] he had been troubled with a cough but had been [illegible] and [illegible] three days before admission. The onset [illegible] the right flank which persisted up to the time of [illegible] The [illegible] was [illegible] Neurotic. He [illegible] 103. [illegible] the pulse rate 150 on admission. The [illegible] blood [illegible] but no pus.

In the right flank there was a large [illegible] which was continuous with the [illegible] the [illegible] muscles were rigid. Notice [illegible] in the [illegible] his breath sounds were [illegible] Normal [illegible] could be [illegible]

In the absence of evidence of any other primary focus [illegible] the perinephric abscess was [illegible] the [illegible] of a cough. The abscess was [illegible] a quantity of evil smelling pus was evacuated. The [illegible] of greenish hue seen in [illegible] was undoubtedly a superinfection [illegible] some of the strep[illegible]

[illegible] pneumococci but of [illegible] the app[illegible] pneumococci but of [illegible] make [illegible] gaseous in the absence [illegible] [illegible] tation [illegible] will not be done on hos[illegible]

LIGATURE [illegible]

[illegible] W aged 3[illegible] [illegible] coolie ship he got [illegible] bucket containing half [illegible] The flexor tendons [illegible] only remained the s[illegible] [illegible] was se[illegible] of the finger

On August 3 1915 [illegible] skin graft [illegible] his left thigh and placed [illegible] granulating surf[illegible] In the absence of green protective [illegible] a piece of [illegible] rubber operation glove was pl[illegible] the graft, and the [illegible] with plain gauze soaked in bo[illegible] [illegible] lotion

In the after treatment the [illegible] constantly kept by [illegible] hot-water bottle, which was [illegible] changed night and day [illegible] tain the heat It was dressed [illegible] later when it [illegible] the whole graft had taken with the exception of a small [illegible] middle of the finger

After it has quite healed [illegible] will [illegible] to wear a protecting glove [illegible] the finger when he returns to work

RUPTURED INTERNAL SEMILUNAR CARTILAGE OPEN REMOVAL

F N aged 26 was admitted July [illegible] complaining of his [illegible] knee joint

Two and a half years [illegible] pl[illegible] football, he made a [illegible] kick with his right foot He had [illegible] pain in the right knee [illegible] but he did not fall down nor did he vom[illegible] His knee was flexed [illegible] he was unable fully to extend it The next day the joint swelled up and at the end of a further day or two the "locking" disappeared [illegible] he was able fully to extend the limb A similar thing happened in [illegible] three days and again three days before admission In between the attacks he was quite well and there was no disability No other joint had trouble him He denied any history of gonorrhœa The affected joint was never stiff first thing in the morning nor after a rest

On examination there was some wasting of the right thigh [illegible] muscles the normal outlines of the patella were obliterated [illegible] ments of the joint were limited though he could fully extend it [illegible] effort On palpation there was some heat in the joint there was [illegible] present no crepitus could be felt on movement there was tender [illegible] at the inner side of the ligamentum patellæ Nothing abnormal could be felt at the lower end of the femur [illegible] the upper end of the tibia There was no lateral mobility of the knee joint nor was any sign of [illegible] recurvatum present There was no urethral discharge nor were any threads in the first urine passed in the morning A [illegible] could not be obtained

The muscle wasting was definite evidence of some organic lesion [illegible]

the joint The ab[illegible] causing the absence of joint crepitus with the al[illegible] bone at the joint margins excluded an osteo arthr[illegible] lateral movement of the joint and of gaping return[illegible] to the crucial and the lateral ligaments of the joint

The sequence of pain locking of the joint and synovitis, with muscle wasting and a tender spot on the inner side of the ligamentum patellae led to a diagnosis of ruptured internal semilunar cartilage Had it been the time of the original injury he would have had his joint immobilized for a month to give the split in the rupture of cartilage a chance of healing As the condition had recurred, the only way of effecting a cure was by an open operation

The joint was opened through a vertical incision curved inward at its lower end There was a circumferential fracture in the anterior fourth of the cartilage close to its attachment to the coronary ligament the split ligament retaining its attachments in front and behind The anterior third of the cartilage was excised In addition to the ruptured cartilage there was a hypertrophied alar ligament this was also excised The joint capsule was sutured with continuous catgut the skin margins were apposed by interrupted silkworm gut sutures No tourniquet was used nor was any splint applied

The wound healed by first intention, and fourteen days after the operation he was walking about the ward He could then flex the knee joint to a little beyond a right angle

Acute Localized Epiphysitis of the Tibia

G F M, a boy aged 17 was admitted on July 31 1915 A few hours before admission after feeling sick he went to the sick bay complaining of feeling dizzy and generally unwell He also complained of great tenderness in the left groin and the left side of the lower part of the abdomen Flexion of the left thigh gave some ease He was said to be unusually constipated

On admission he looked very ill His temperature was 104 6° F, pulse rate 130 and respirations 28 His breath was most offensive and was described as "almost fecal"

Examination showed rigidity of the muscles with tenderness over the left iliac fossa Over the left saphenous opening was an exquisitely tender swelling, elastic in consistence smooth surface, edge not well defined and firmly fixed to the deeper structures there was no impulse on coughing Further routine examination of the extremity revealed a tender area on either side only of the tubercle of the tibia but no tenderness in front nor at the site of the rest of the tibial epiphysis neither overlying skin nor the knee joint was involved, nor was there any œdema On questioning him he stated that this tender place was the result of a knock some time previously he had never had any night pain

Frequently changed fomentations to the upper end of the left tibia and to the left femoral region with a dose of castor oil, quickly cured the patient and he was discharged to duty within a week

Before seeing the case I received three separate suggestions as to the diagnosis (1) volvulus (2) strangulated femoral hernia (3) localized peritonitis

[illegible] they were due to the [illegible] the external and common [illegible] ves [illegible] the constipation, and [illegible] offensive [illegible] femoral hernia, but [illegible] quest [illegible] passed flatus freely then [illegible] licen [illegible] lungs no evidence of [illegible] persis [illegible] primary focus was only [illegible] ly a [illegible] such a localized [illegible] epiphys [illegible] pain is important [illegible] only pos [illegible] he by means of a [illegible] radiog [illegible] operations was out of order [illegible] this [illegible] he [illegible]

Bunion [illegible] Radical Cure

R. C. aged 28 was [illegible] July 19 1915 complaining of a bunion [illegible] toe which was dis[illegible] from [illegible] to have it amputated.

On examination there was a dislocation at the proximal joint of the second toe of the right foot the head of the first phalanx being displaced in front of the base of the second phalanx the distal joint of this toe in a position of extension. The condition was of much due partly to an outward displacement of the adjacent great toe the hallux being much bent overlying bunion. The position of the great toe was causing the displacement of the second toe. It was therefore no use operating upon the bunion toe unless the great toe deformity was also dealt with.

Mayo's operation was performed for the cure of the bunion. (1) a semilunar flap of skin convex forwards over the bunion and the first metatarso phalangeal joint was reflected back. (2) the remaining tissues down to the bone including the bunion (or bursa) and adventitious bursa) were carefully reflected backwards as a separate flap. (3) the head of the first metatarsal bone was exposed. (4) the bony margins of (2) were sutured to the tissue adjacent to the second metatarso phalangeal joint the bunion and deep aspect of the flap so that the unopened bursa was lying in front of the stump of the first metatarsal bone. (5) the skin was sutured.

The bunion therefore is not [illegible] as the site of the false joint and the presence of this bursa explains the nonappearance of such a joint between the metatarsal bone and the opposing phalanx. The operation was concerned by Charles Mayo is a brilliantly successful [illegible]

Analysis of Operations

Ruptured diaphragm closure only	1
Acute appendicitis appendicectomy	21
Tamponade only	1
Inguinal hernia radical cure	13
Varicocele radical cure	
Hydrocele of tunica vaginalis radical cure	
Prostatic abscess with acute retention of urine perineal prostatotomy	1
Hemorrhoids radical cure	13
Fissure in ano division of external sphincter ani	1
Fistula in ano	1

[illegible] dilatation	[illegible]
[illegible] cystoscopy	[illegible]
[illegible] on	1
Fracture [illegible] skull [illegible]	[illegible]
Acute [illegible] mastoiditis	1
Prolapse of [illegible] replacement	1
Perforation wound of eyeball [illegible]	
Chronic ulcer of arm [illegible] plastic	1
Simple cyst of superior maxilla [illegible]	1
[illegible] of hip joint [illegible]	1
Pyarthrosis of knee joint [illegible]	1
Implanted internal semilunar cartilage [illegible] open [illegible]	1
Compound fracture of tibia [illegible]	1
[illegible] leg [illegible]	4
[illegible] exostosis [illegible]	1
[illegible]	1
Amputation of digit [illegible]	4
[illegible] skin graftings	1
Simple tumours excised	7
Lacerated wounds [illegible] cleaning up	[illegible]
Drainage of abscesses	31
Miscellaneous	[illegible]
[illegible]	142

[1] One case died (acute [illegible])

A CASE OF POLYCYTHAEMIA VERA

By Staff Surgeon S. T. Dudley Mr[illegible]

This disease is authoritatively said to [illegible] The case occurred in an able seaman of the [illegible] to hospital for heart trouble [illegible] 1911. The man left the Service in 1909 and was called up [illegible] 1911.

He has had no disease of any [illegible] his life except indefinite attacks of fever when on the China S[illegible] years ago. His family all have normal complexions and [illegible] He was employed after leaving the Navy in helping his father [illegible] public house. It was only on rejoining the Service in August 1911 and [illegible] to do heavy physical work that he began to experience any symptoms. These were first occasional headaches and attacks of dyspnoea. Later he noticed praecordial pain of a stabbing character spreading [illegible] the left shoulder and down the left arm. For the last two years he had observed that his face was getting red.

His condition on admission was as follows: His face was an intense bluish red colour; his hands and feet were also bluish-coloured but less marked than his face. The colour went from the extremities to some degree on elevating the arms or legs. The conjunctivae were injected and bloodshot. The heart was dilated and hypertrophied. [illegible]

[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]

AN UNUSUAL CASE OF SEVERE INJURY [illegible]

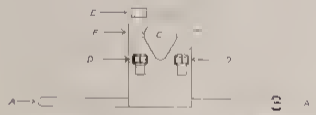
By Surgeon Lieutenant C. B. Smith, R.N.

A Able of H.M.S. "Cadmus" was employed as one [illegible] look out [illegible] crow's nest at the masthead. Whilst going on watch at [illegible] March 13 he had ascended the ladder way inside the mast [illegible] to the crow's nest and was in the act of stepping from the [illegible] the angle iron into the crow's nest when his foot slipped [illegible] left in the upright position 40 ft. to the dock below, the narrow [illegible] the rest tunnel keeping his body vertical. He sustained the [illegible] compound oblique fracture of the right tibia, the [illegible] protruding for about 1½ in. through the wound, [illegible] fracture of the right fibula at the junction of the middle [illegible] fracture of the external and internal malleolus [illegible] the skin of the tibia in an oblique manner, semicircular [illegible] of the cuticles which extended from just below the articular [illegible] the ligamentum to the articular surface with the cuboid of [illegible] foot. Suffering a great deal of pain and severe shock, he [illegible] from the compartment at the base of the mast [illegible] and carried to the sick bay where he was examined [illegible] and treated for shock with stimulants, hot blankets [illegible] being administered hypodermically. After [illegible] the severe stages of shock he was [illegible] chloroform, the rest of the wound was then [illegible] cleansed and painted with 2½ per cent iodine [illegible] wound and protruding bone having been well cleansed [illegible] was opened up and extended downwards [illegible] the fractured portion of bone which was freely [illegible] as possible. 2½ per cent iodine in spirit [illegible] the fragments and the wound well swabbed out with [illegible] Owing to the protruding bone a good deal [illegible] on the lower part of the leg was [illegible] the fragments were put into apposition. Rubber [illegible] drains were now inserted, the lower part of the [illegible] and dressed with cyanide gauze with [illegible] traction apparatus for extension was [illegible] applied. When the patient was put [illegible] Sims's cradle and the extension carried [illegible] bearing weights and pulley. Whilst in this [illegible] dislocation of the left ankle [illegible] into apposition. The leg and foot were [illegible] splints and evaporating lotion applied. For the following [illegible] days he suffered a great deal of pain, especially in the left [illegible] which were extensively bruised. The compound fracture did well and at no time showed any signs of suppuration. [illegible] pressure during the eighteen days he was in the ship [illegible] complained of pain in both hips due to [illegible] impact of the fall acting on his hip joints. Massage and [illegible] of the left ankle were carried out as early [illegible] and [illegible] wound healed. There was no opportunity [illegible] to land until March 31, when he was discharged

to the Royal Infirmary, Liverpool [illegible] stable and free from pain. [illegible] I let seen [illegible] able to walk and could move the left [illegible]

NOTE ON A NEW AMBULANCE SLING

By [illegible] Surgeon P. H. B. [illegible]



[illegible] breadth [illegible]

[illegible] Ambulance sling. Scale [illegible]

The accompanying diagram and photo[illegible] ambulance sling, which I have devised and [illegible] Collingwood. It consists of a strip of stout [illegible] 15 in. wide. A hole 11 in. by 7½ in. is cut in the middle [illegible]

[illegible] edge. [illegible] canvas strap [illegible] [illegible] the canvas [illegible] [illegible] one on either side. At the back [illegible] strips [illegible] long [illegible] one at each [illegible] The above dimensions are suitable for a [illegible] average height.

[illegible] the bearer should seat himself on the deck pass [illegible] hole in the canvas (C) and tightly buckle the [illegible] the back leaving the long canvas flap free. The

[illegible]

pattern [illegible] [illegible]

(a) [illegible]

(b) [illegible]

(c) [illegible]

(d) [illegible]

(e) [illegible]

(f) [illegible]

(6) Especially useful in small [illegible] places w[illegible] [illegible]kward to use a stretcher.

(7) The upper and lower limbs of the bearer [illegible] for negotiating ladders, hatches, &c.

It is almost needless to say that the sling is in [illegible] used in carrying the less seriously wounded who are unable to [illegible]

Fig. 3

Reviews.

A series of [illegible] Medicine [illegible] object of which is to [illegible] description and [illegible] treating war [illegible] aimed at the [illegible] fitting, the first year [illegible] by Messrs [illegible] and Hodder and Stoughton [illegible] Warehouse Paternoster Row, E.C. and under the [illegible] ship of Lieutenant Colonel D'Arcy Power [illegible] M.C. (T.F.) [illegible] of a size convenient for the pocket and [illegible] price [illegible]

We [illegible] to [illegible] of our readers the undermentioned new volumes [illegible] this series.

WOUNDS IN WAR: THEIR TREATMENT AND RESULTS. By D'Arcy Power, M.B. (Oxon.), F.R.C.S. (Eng.), Surgeon to and Lecturer on Surgery at St. Bartholomew's Hospital, Lieutenant-Colonel, R.A.M.C. (T.F.). London: Henry Frowde and Hodder and Stoughton. 1916. Pp. 105. Price 3s. 6d. net.

This book deals chiefly with the first treatment of wounds of the soft parts and of fractures. It opens with an introduction on the influence of the position of the surgeon, the crisis of disease in surgical practice and the effects of surgical advances on treatment of wounds. There follows an account of the cause of wounds and ballistics and brief description concerning the various missiles in use.

The remaining ten chapters are devoted to treatment of wounds of the whole part, both immediate and late, the vaccine therapy of wounds, the results of wounds, including shock, hæmorrhage, ligature of arteries and nerves, forms of infection, tetanus and gaseous gangrene, and complications.

Thorough antiseptic methods are advocated throughout, and full detail is given, the author favouring carbolic acid 1 in 20 for the skin and the strong tincture and for the recesses of the wound when the [illegible] are applied where better is properly dressed, elsewhere hypochlorite of lime 1 in 2000 and peroxide of hydrogen in their proper place. The new shell dressing now supplied to the Army contains a much purer material than the ordinary first aid packet, and in addition is still plaited in impure of lime. The important help afforded by the bacteriologist in examination of wound secretions and production of immunity can be gathered from a study of the excellent summary of present methods in the chapter on "The Vaccine Therapy of Wounds." The opinion is expressed that serum treatment in general has not been very convincing, but that treatment by sensitized streptococcal vaccines has been adopted with most striking results.

We have nothing but praise for this little book. It is well written and there is a good index. As an exposition of modern wound treatment it can be very strongly recommended.

W. L. M.

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[1] By R. J. Mackenzie Wallis, M.A.Oxon., Demonstrator of Chemical Pathology at St. Bartholomew's Hospital, and Registrar, Medical Officer at the Hospital for Officers, Princes Gate, S.W.

Surgery of the Head. By L. Bathe Rawling, M.B., B.C. Cantab., F.R.C.S. Eng., Surgeon and Senior Demonstrator of Operative Surgery, St. Bartholomew's Hospital, Major R.A.M.C. (T.F.). London: Henry Frowde and Hodder and Stoughton. 1915. Pp. 130. With 31 illustrations. Price 3s. 6d. net.

At a time when trench warfare has led to a comparatively large increase in the number of cases of head injury, a work on cerebral surgery by such a well known expert is very welcome. The book opens with a useful chapter on the clinical applied anatomy of the scalp, the skull, the brain, the cranial nerves, the membranes, and topography of the skull and brain. Other anatomical paragraphs are found elsewhere, notably in the final chapter when again discussing cerebro-cranial topography.

Chapters follow on injuries of the scalp, skull and brain, fractures of the vault, intracranial haemorrhages, fractures of the base of the skull, infections of the brain and meninges, diseases of special regions, cerebro-cranial topography and technique of operations on the skull and brain. Experience of the War has established the fact that the great majority of head injuries with increased intracranial pressure are associated with some degree of papilloedema (or true optic neuritis), the whole appearances being those of raised intracranial pressure and not those of inflammation. Stress is laid on the fact, sometimes forgotten, that every fracture of the external table, however trivial at first sight, is associated with a much greater comminution and depression of the internal table. The time at which operation should be undertaken in fractures of the vault after a proper investigation of the case is discussed at length; such a decision on the part of the surgeon can be arrived at with greater precision if he approaches the case with the preconceived idea that all head cases require immediate operation, the general condition of the patient allowing, of such treatment. In the early stage of compression following upon fracture of the brain, treatment should be by decompression either by venesection, lumbar puncture or sub-temporal operation; in severe cases the latter gives the best results. The technique of sub-temporal decompression is fully described. For intractable hemiplegia, a contralateral decompression is recommended; in hemiplegia of hysteria, the operation should be a left sub-temporal decompression.

The final chapter on certain special techniques and technique of operations on the skull and brain is particularly good. For the control of haemorrhage from scalp vessels, a simple hemostat, devised by the author, is here described. It consists of a rubber band with a special metal piece through which holes are bored for passage of the rubber; the rubber is of greater calibre than the hole through which it passes, and consequently when tightened up locks itself. It is applied as low down over the occipital artery and branches as the level of the ears.

The illustrations throughout are very good and instructive. The skilful manner in which so extensive a subject has been dealt with in a small volume commends our admiration. The appendix in which is afforded should prove of great value to all. The book must be recommended with every confidence.

W. L. M.

[illegible] OF THE THORAX IN WAR. By J. Hugh Mc[illegible] F.R.C.S., Surgeon [illegible] the Miller General Hospital, [illegible] London; Surgeon [illegible] Paddington Green Children's Hospital; [illegible] R.N.V.R., late of H.M. Hospital Ship "Soudan." [illegible] London: Henry Frowde and Hodder and Stoughton. 1916. [illegible] With 22 illustrations. Price 2s. 6d. net.

In this work the author gives us the results of his own personal experience, which has been military as well as naval, and impressions [illegible] more than all on he has been brought into personal contact. The book he entitles the manual as a short practical account of the thorax in war, but in reality the subject is dealt with [illegible] fully.

The [illegible] and general clinical features of wounds of the thorax in war, the immediate effects produced by wounds of the thorax and varieties of wounds of the chest, are discussed in the three opening chapters. Useful information is given as to the weapons and missiles used in modern warfare and the characteristic wounds they produce. The results both immediate and remote of a bullet wound depend rather on the amount of damage done to the anterior and posterior chest walls than on preformed holes, being which being an elastic organ readily contracts. Shrapnel bullets do not penetrate far and produce jagged punctures which [illegible] *septic*. Shock in wounds of the thorax is uncommon but its amount depends entirely on the extent of the injury to the lung and has no reference to injury of the lung. Hemoptysis immediately after a perforating wound is not common, nor is the hemoptysis which may occur a few days later give rise to any anxiety.

The later effects produced by penetrating wounds of the thorax are those dealt with: hæmothorax and pyothorax naturally reserving the chief attention. Hæmothorax in the majority is due to a gradual oozing from an intercostal vessel and is specially frequent in cases which have not had any prolonged rest after the injury. Septic infection of the hæmothorax is comparatively frequent: the clinical signs of this all important complication, and the technique of the necessary operative procedure, are given very fully under the heading of Pyothorax. In infected hæmothorax an exploratory puncture is indicated to confirm the diagnosis. In the author is strongly opposed to the use of the aspirating or exploring syringe in all cases of early hæmothorax. If used, the most scrupulous antiseptic precautions are necessary, and the needle should not penetrate near the track of the bullet. Most of us will agree with the opinion expressed that the probe in military surgery should be relegated to the past.

The concluding chapters on the surgical treatment of wounds of the thorax, their septic complications, and bacteriological therapeutic [illegible] are very instructive. A corrosive of iodine containing 5 per cent. of pure iodine and known as iodex is recommended for immediate treatment: it is said to be painless, not to precipitate protozoa, and to be of good penetrating power.

The illustrations include two excellent plates showing x-ray views of the normal thorax from in front and from behind.

We have said enough to show our readers that a study of this book will repay them well. It will be found of great practical value and very interesting.

W. L. M.

[illegible] By R[illegible] [illegible] Senior S[illegible] [illegible] Wa[illegible] Carbon M[illegible] [illegible] Nervous [illegible] Stoughton [illegible] net

[illegible] chapter sections [illegible] given in a [illegible] of contusions of the [illegible] and internal [illegible] still going on [illegible] hour of delay in period [illegible] tenderness and rigidity [illegible] once in rupture of the [illegible] the inflammations for operation [illegible] and hemorrhoids [illegible] though moderate continues [illegible]

In operating for gunshot [illegible] wasted in searching for bullet [illegible] reach should be touched [illegible] greatest importance and [illegible] and hunted to relief of the [illegible] is laid on the surgeon [illegible] should be operated [illegible] emergencies such [illegible] organized and equipped hospital [illegible]

The technique of [illegible] treatment is dealt with [illegible] valuable hints will be found [illegible] of which can be found [illegible] patient saves skin [illegible] every mop one foot of [illegible] a metal ring at the other [illegible] the danger of leaving [illegible] which all surgeons will [illegible] scratches are made accidentally [illegible] after suturing an aspirator [illegible] empty, a method which [illegible] through the dressing [illegible] a method of anastomosis by [illegible] in the special circumstances [illegible] thought to be the safest [illegible]

The illustrations are [illegible] useful points in operative technique [illegible]

We learn from the preface that the [illegible] men who may be called upon in those [illegible] gency and whose knowledge of [illegible] somewhat rusty. Through in so small [illegible] to deal completely with this large subject [illegible]

wo [illegible] to those of us for whom [illegible] W. L. M.

Gun[illegible] W. Hey Groves, M.D. [illegible] Bristol General Hospital [illegible] Captain R.A.M.C. (T.) [illegible] Longman, 1915. With [illegible]

[illegible] discussion of severe [illegible] to establishing [illegible] is well known for [illegible] his experience [illegible] many original views on [illegible] that although the [illegible] not conclusive, it is fully [illegible] phasis of [illegible]

[illegible] opens [illegible] some forms of gun[illegible] the plaster [illegible] the first-named as [illegible] by the prese[illegible] injury is a comminuted open [illegible] to undergo repair is ample and [illegible] rather more rapid than in simple fractures [illegible] when treatment is delayed this tendency [illegible] deformity, and that repair will be prolonged [illegible]

Chapters follow [illegible] (clinical examination), symptoms and [illegible] principles of treatment. In no case should [illegible] bone be neglected on the ground that [illegible] is important. For non-union or delay [illegible] described by Wilkey (*Brit. J. Surg.*, [illegible]) is recommended after the wound has healed [illegible] material surfaces are cut through by a drill [illegible] of treatment are summarized as follows: [illegible] and drainage, immobilization in the [illegible] position in the correct direction [illegible] the joints [illegible] gives free access to the wound without [illegible] of the joints. For drainage transfixion [illegible] should be located as they remain more open than the longitudinal [illegible]. The immediate plating of bone is rightly [illegible] extension of necrosis or general sepsis later [illegible] pain and ease in transportation, the author has not had [illegible] success following early plating.

The succeeding chapters [illegible] lower jaw and upper limb fractures of the lower limb [illegible] special methods of treating gunshot fractures in [illegible] Many special splints devised to obtain the [illegible] extension with a minimum of trouble in dressing, the [illegible] and the disadvantages of the Liston [illegible] splints are pointed out. A modification of Hodgen's splint [illegible] Captain Hey Groves is simple of adjustment and [illegible] satisfactory in lesions of the lower leg. The technique is [illegible] by transfixion pins by horseshoe screw clamps [illegible] double transfixion

[illegible] of which the pins can [illegible] planes at [illegible] any transverse diameter of the limb

[illegible] very good they [illegible] several [illegible] illustrations of splints and their mode of application

All are aware of the [illegible] results which may ensue by too close an adherence to old [illegible] methods in the treatment of gunshot fractures and how widely war [illegible] differs from ordinary surgery in this respect We know also that the [illegible] are now of the utmost importance and that they are most difficult to treat For these reasons this book, which contains most valuable info[illegible] on partly gleaned from recent experience will create wide interest We can most strongly recommend it

W L M

INJURIES OF JOINTS By Robert Jones, Ch M, F R C S E & I Director of Military Orthopædic Hospital Liverpool Consulting Surgeon to Queen Mary's Convalescent Auxiliary Hospitals, Major R A M C (T F) London Henry Frowde and Hodder and Stoughton 1915 Pp 189 With twenty nine illustrations Price 3s 6d net

We learn from the preface that the object of this little work is to attempt to give some help in the diagnosis and treatment of injuries of joints in a form which will be useful to the hundreds of practitioners who have left the quiet paths of private practice for the more eventful career of military surgery

In the opening chapters many practical hints on essential points in treatment are given, the remarks defining the time when passive movement should commence and the nature of such movement are particularly useful bandaging from within outwards over the front should be abandoned when treating joints, but should be as desired to invert or evert the limb pain in sciatica is generally due to irregularities in blood-pressure, and a simple adjuvant remedy is contrast bathing by first plunging the injured limb into the hottest water that can be borne and then into the coldest water procurable in threatened contraction of scar tissue it saves time and trouble to put the limb in a stretched position early or during the stage when the fibrous tissue elements of repair commence to form in the wound

The succeeding four chapters are devoted to joints of the upper limb, injuries to spinal column joints of the lower limb and the ankle joint and foot In these pages the diagnosis and treatment of joint injuries is put clearly and concisely many excellent methods being given which are not found in the usual text books

The book is well written, numerous illustrations show varieties of splints and their mode of application The author has succeeded admirably in his endeavour to set forth in a small space the results of a wide experience, not alone when dealing with the more serious injuries but also in his account of those minor injuries of the structures about joints which are at times so troublesome and so difficult to cure within a reasonable compass of time Our readers will find that the book is extremely interesting and instructive

W L M

INJURIES OF THE EYES NOSE, THROAT AND EARS By Andrew Maitland Ramsay M D, F R F P S Glas, Major, R A M C (T F) J Dundas Grant, M D, F R C S Eng, late Major R A M C, H Lawson Whale, M D Camb F R C S Eng, Captain R A M C (T F) and Charles Ernest West F R C S Eng Captain, R A M C (T F) London Henry Frowde and Hodder and Stoughton 1915 Pp 160 Price 2s 6d net

The first section of this book, on Injuries of the Eyes is written by Major A M Ramsay In an introductory note we are told that in modern warfare eye injuries are of very frequent occurrence but, whatever their cause it may be taken that they differ merely in degree and not in kind, from those met with in ordinary civil life From the severity of most of the cases and the rapidity with which they become septic, there must often be little chance of saving the eye, and it is obvious that little can be done on the field except to render first aid The author here indicates lines of first aid treatment which if carried out will lessen the three chief complications—sepsis tetanus and sympathetic ophthalmia Eight chapters then follow contusion or concussion injuries, penetrating wounds of the eyeball foreign bodies in the eyeball degenerative changes occurring in eyes after perforating wounds, burns and explosion injuries sympathetic ophthalmia, amblyopia due to traumatic neurosis ocular signs and symptoms accompanying head injuries Much valuable information will be found in these pages, particularly on sympathetic ophthalmia and on amblyopia due to traumatic neurosis little is on record, hitherto, in regard to the latter condition

The second section, on Injuries of the Nose and Throat is compiled by Major Dundas Grant and Captain H L Whale A short account of the influences of the direction and nature of the projectile is given followed by useful information as to the surgical anatomy of the nose and accessory cavities Wounds of the nose accessory cavities and wounds of the throat are then discussed at length and the section closes with a series of thirty eight cases, illustrative of many points referred to in the preceding text

Injuries of the ears are than dealt with by Captain C E West only ten pages being allotted to this subject We learn that earlier in the War deafness due to the explosion of a shell was more frequent than during the present year From his account of deafness ascribed to war causes one gathers the impression that most of such cases have had pre existing ear disease, and that it is often difficult to attribute the lesion solely to a cause such as shell explosion In the Royal Navy experience tends to corroborate this nearly all our cases of so called gun deafness having had pre existing ear disease

Though this little book covers a wide field in a small space, it is very interesting, and should prove of great assistance to those who are called upon to treat these classes of injury W L M

NERVE INJURIES AND SHOCK By Wilfred Harris, M D Camb, F R C P Lond Physician to St Mary's Hospital, &c, Captain, Royal Army Medical Corps (T), 3rd London General Hospital London Henry Frowde and Hodder and Stoughton 1915 Pp 123 Price 3s 6d net

This work deals very succinctly with the important features of the various forms of nervous injury met with as the result of large shell

[illegible]

[illegible] injury. If [illegible] base it is most [illegible] room for a month a[illegible] another six month[illegible] injuries cannot [illegible] chloral should b[illegible] the insane lell w[illegible] is well described [illegible] and especially th[illegible] would prove most [illegible]

Medical Hints. [illegible]
D P H Carlisle [illegible]
Army Medical [illegible]
Hospital for D[illegible]
Hodder and St[illegible]

This little book [illegible] employed with tr[illegible] commonly affect [illegible] Division will find [illegible] treatment. But th[illegible] Effects of Alcohol [illegible] in Hospital a[illegible] on Acute Inf[illegible] spread of exanth[illegible] of the intemperate [illegible] of men becoming [illegible] devoted to this [illegible] common in all comp[illegible] reasons why this is [illegible] the means we have [illegible] respiratory diseases [illegible] tentatively and [illegible] Service of cattle [illegible] under proper [illegible] whether any such [illegible] ive service without great danger [illegible] vast number of their comrades. Certa[illegible] about the

[illegible] disease [illegible] fail [illegible] especially [illegible] ting [illegible]

R C M

Cerebrospinal Meningitis. By [illegible] Translation. St [illegible] Scering with the [illegible] Dionis and Horle [illegible] illustrations [illegible] 6d

This monograph is [illegible] practical practice, and [illegible] pathological facts a[illegible] necessary to the [illegible] of the subject. The [illegible] of the disease and its [illegible] the nomenclature [illegible] interesting opening chapter the author passes to a [illegible] epidemiology and mode of dissemination. The infection [illegible] and a low total mortality but with foci of more [illegible] here and there. Of world wide distribution the disease [illegible] mostly on Central Europe and the North east States of [illegible] being most marked in the winter and spring seasons in young persons and especially among recruits in barracks and garrison towns and in not in the field. The writer proves conclusively that the disease is contagious but only to a slight degree. He examines in the early [illegible] with due regard to the low degree of virulence of the cocci on [illegible] the upper part of the nasopharynx and the posterior rhinoscopy will yield evidence of the presence of the meningococcus in a very high proportion of cases which decreases in inverse proportion to the [illegible] of the disease from 90 per cent in the first three days to [illegible] per cent in the fifth week. He every case of cerebrospinal fever there exists in times of epidemics a number of healthy carriers variously estimated at ten to twenty according to the season the stage and severity of the epidemic and closeness of contact. The elevation of the cocci in the nasopharynx of patients in three to four weeks after convalescence begins but in the case of carriers this period is more uncertain and may extend to months. An epidemic of the disease is due to the increase in virulence and to the spread of the meningococcus present in the nasopharynx of the sporadic carrier, the determining factors being cold weather, overcrowding and catarrhal affection. The actual mode of conveyance of the meningococcus from the carrier whether healthy or not to the unaffected person is by coughing sneezing kissing or even speech alone. The third chapter is devoted to the bacteriological aspects of the disease the production of immune serum the method of its preparation and the results of treatment with it. The author gives the astonishingly optimistic estimate of a reduction of mortality by serum treatment from about 80 per cent to 30 per cent. The cerebrospinal fluid in health and disease is described in Chapter IV which includes the anatomy and physiology of the structures concerned. The probability of clear fluid in the invasion stage the marked turbidity in the acute stage and its progressive clarification in the later stages are noted. The chemical cytological and bacteriological changes in the fluid are also all of diagnostic value but more especially the first two. The next chapter deals with lumbar puncture in full detail. Barker's

needle is [illegible] until the [illegible] seconds. In [illegible] the disease [illegible] four to five [illegible] Chapter VII [illegible] in Chapter IX [illegible] most [illegible] remaining [illegible] congratulate [illegible] has recently [illegible] with the approval [illegible]

C. M.

THE STUDENT'S [illegible] Henry Trowbridge [illegible] Illustrations 138. [illegible]

Each page [illegible] illustrated with [illegible] the whole duty of [illegible] harmonious [illegible] completely illustrate [illegible] special intuition [illegible] who have [illegible] introductory [illegible] breathing respiration [illegible] rest of the [illegible] a series of [illegible] because the most interesting form of [illegible] ng the injured

R. C. M.

Abstracts and Translations.

[illegible] Sums

[illegible] of opinion concerning the presence of rats on board [illegible] relative ability to surmount difficulties of [illegible] ship between quarantine officers and shipowners. The [illegible] allegedly good footing on it is sometimes marred [illegible] illumination requirements. Any such plan [illegible] allowed. The cabin of a British steamship [illegible] New Orleans although the ship [illegible] so efficient a hunter that no rat will possibly [illegible] of late the cat was lost sight and when [illegible] its dead body was found together with [illegible]

[illegible] transactions that [illegible] occasionally [illegible] unfavorable and the results [illegible] the conclusion that suffering people [illegible] against the [illegible]

[illegible] 107 [illegible] a missionary service [illegible] steamship. The crew [illegible] Sydney on May 21 [illegible] catcher [illegible] one. The dead rat was found to be infected [illegible] the vessel was fumigated in Melbourne on May 9th [illegible] cargo on board. On [illegible] lay 160 [illegible] employed. May 25th 161 more rat carcasses were collected [illegible] After the vessel returned to Sydney [illegible] collected. [illegible] rats killed [illegible] the operation. She was then [illegible] fumigated [illegible] the result that 200 dead rats, 12 living mice and 2 [illegible] were still [illegible] The operation yielded 70 [illegible] vessel is [illegible]

[illegible] Health Service reports finding 310 rats [illegible] small vessel [illegible] 500 [illegible] The reports that [illegible] very one [illegible] rats from the living [illegible] of particular interest as the

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[illegible] Service [illegible] Western Australia Quarantine Service [illegible] Department of Internal Affairs [illegible] Health [illegible] Wellington [illegible] Quarantine Officer [illegible] Extracted from Lieutenant Colonel R. H. Reece, R.A.M.C.)

fumigation of oil steamers is a process requiring great care and special apparatus in view of the inflammable fumes.

Swimming Powers of Rats.—Specimens of *Mus decumanus* have under experimental observation swum for an hour and a half in a 2 mile tide in slightly roughened water. Another in smooth water with a favourable tide swam 400 ft. to land in six minutes. Another swam 1,500 ft. to the shore in fifty-five minutes against a light breeze and slight wash. *Mus rattus* and *Mus alexandrinus rattus* swam for forty-five minutes in slightly rough water with an adverse tide and wind. The writer found by experiment in 1901 that average adult specimens of *M. decumanus* and *M. rattus* could swim across the River Yarra at Queen's Wharf, Melbourne, and that a distance of from 200 to 300 yards in smooth water was no unusual performance. Hunted rats have also been seen to swim across the Brisbane river where it is about a quarter of a mile wide. The *M. decumanus* when hunted into the water will often dive, and swim under water for a considerable distance before reappearing. *M. decumanus* is a better swimmer than *M. rattus*.

Climbing and Jumping.—*M. decumanus* is inferior to *M. rattus* and *M. alexandrinus* as a climber and jumper, but it is nevertheless capable of remarkable feats when pressed by danger or hunger. All these species will climb the face of an ordinary brick wall for 12 ft. or more, the *M. decumanus* appearing to do so more readily when it is about half grown. The tail is used freely to assist in climbing. *M. rattus* and *M. alexandrinus* and to a lesser extent the *M. decumanus* will readily climb corners of pilasters, doors, and archways, and can get round elevated corners up to 6 or 8 in. in width. All three species will climb the inside of a vertical pipe if not over 3½ in. in diameter, but a 4 in. pipe appears to present difficulty. All three will climb up or down a wire or other rope with ease for considerable distances. Rats have frequently been found in the folds of furled sails and other places aloft, and will easily make their way up a ship's rigging.

Healthy adults of all three species if pressed will clear a horizontal space of over 3 ft., and are reported by experienced rat men to be able to leap fully 6 ft. on occasion. *M. alexandrinus* and *M. rattus* have been observed to jump 2 ft. vertically upwards and *M. decumanus* 17 in.

The animals appear to possess a remarkable resistance to falls from a height. The writer has seen rats chased by dogs over a ship's side, leap down more than 20 ft. to the wharf below, and run away apparently uninjured. Rats have also been seen to leap from the tween decks of a ship to the bottom of the hold a distance of over 20 ft. and to land apparently uninjured.

Concealment.—All three species are adepts at sheltering themselves in small spaces and in squeezing through small openings. The remarkable development of this accomplishment it requires to be seen in practice before it can be thoroughly appreciated. It is of much practical importance in ship fumigation, especially where certain compartments only are put under treatment. The casings of the engine telegraphs, winch steam pipes, sounding pipes or steering gear will afford shelter for numerous rats if they are driven out from below. Spaces behind casings and linings, unprotected openings where pipes lead through walls or bulkheads, ventilating spaces over cornices, shafts for food lifts, drainage openings in the coaming of waterways in lumbers or at the sides of tween

[illegible] and heat [illegible] and similar [illegible] all afford [illegible] tare is taken [illegible] them Gr[illegible] experimentally [illegible] ther by dr[illegible] pp[illegible] ats to survive [illegible] on In meat [illegible] loose bale cargo rats [illegible] themselves [illegible] quite surprising way and their introduction by this means from [illegible] infected ports constitutes a serious danger It is been blamed by Hirsch for the introduction of plague to Manila

Amongst the goods commonly imported into Australia the following are those which offer most risk in this way Oil cake in sacks, rice and dried beans in mats or sacks chinaware in crates with straw, matting in bundles dried vegetables in baskets or cases peanuts in sacks dry ginger and corios in light cases which are liable to be broken on landing loose hemp in bundles rope in coils covered with bagging kapok in bales, maize in bags, sea grass in bales and bamboo poles in bundles covered with matting

From the foregoing it will be clear that protests against strict enforcement of the regulations relating to special measures against plague deserve no attention and that the most exhaustive care is required to render fumigation efficient as a rat-destroying agency on board ship Given sufficient inducement whether by unusual or uncomfortable conditions on board, or especial attractions ashore a healthy adult rat will probably overcome or evade any of the practical obstructions we can put in its way But these obstructions will stop a sick rat Under ordinary conditions, however, the healthy individuals will probably avoid the trouble and risk involved in overcoming them

The internal protection of vessels against access of rats to foodstuffs and edible refuse and from one portion of the vessel to another is a problem which requires active and constant attention It contains many practical difficulties, but is not insoluble The evolution of the transpinal ship which will provide as few attractions as possible in the form of shelter from immigants harbourings for breeding or access to foodstuffs will mark a definite advance towards the controllability of plague Opportunities occur however, for improving defects in existing vessels both under ordinary running conditions, and more particularly when laid up for repairs and overhaul The protection of food stores and vegetable lockers by means of steel wire netting of sufficiently small mesh to exclude effectively mice as well as rats, is an essential feature of such operations Similar netting can be used in many places to block runways, without preventing air circulation or light access and for port holes when the vessel is lying alongside a wharf or lighter Boats, rafts, and similar places above deck may with advantage be searched for rat harbourage and suitable measures taken to prevent reoccupation When extensive repairs are being effected it is often a simple matter to have some of the boards or linings made removable in order to give access to the space behind for fumigants and traps or even to have some linings removed altogether

CHANTEMESSE Sur le vaccine triple de la fievre typhoide *Bull Acad Med* August 1915 vol lxxiv No 35

In 1909 the Japanese employed on a large scale separate inoculations of typhoid and paratyphoid A and B vaccines Later they mixed these

[illegible]

[illegible] incidence [illegible] has much [illegible] allow one to conclu[illegible] three diseases does no[illegible] Rabeshima also show[illegible] produced by the high v[illegible] when immunization is o[illegible]

Professor Chesterm[illegible] of each of the three [illegible] very likely and that [illegible] fatal diseases while [illegible] infection but that [illegible] time the three prep[illegible] at the hospital de la Cole P[illegible] to typhoid this vaccine [illegible] reaction against the more [illegible] His formula was 50 per cent of [illegible] and 20 per cent of paratyphoid [illegible] was much less than that [illegible] by the [illegible]

(A triple vaccine is being [illegible] satisfactory results This contains [illegible] 250 million *B paratyphosus* A, 2[illegible] for the first inoculation 1 c c and fo[illegible] W E S

SAURAILEF (A.) ARMAND DETILLE (F[illegible] (H.) N[illegible] l'épidémie du lac de trois p[illegible] le A[illegible] Dardanelles sur les troupes l[illegible] O[illegible] *L'Acad de Med* September 1[illegible]

It is probable that various tropical [illegible] will be met with endemically prescri[illegible] the expeditionary forces in the Dar[illegible] nationalities represented and th[illegible] their development The authors ch[illegible] day fever which was different to th[illegible] the Far East The description th[illegible] phlebotomus fever of the Adri[illegible] flies were abundant in the air [illegible] were most probably the carriers [illegible]

They draw attention to the [illegible] prolonged period of asthenia follow[illegible] the great predisposition during convalescence to contract oth[illegible]

such as typhoid and paratyphoid. The cases commenced to appear about the middle of June and relapse occurred in 50 per cent of the cases. (This is probably one of the forms of fever which are included in the comprehensive term "trench fever" and is likely to be found in most of the fighting areas during the summer months.)

P. W. B. S.

NEWBURGH (L. H.) and MINOT (G. R.). The Blood pressure in Pneumonia. *Arch. Inter. Med.* Chicago, 1911, vol. xiv, pp. 48-55.

It has been thought that circulatory failure in pneumonia was not due to cardiac incompetence but to exhaustion of the vasomotor centre in the medulla. In 1908 the late G. A. Gibson of Edinburgh stated that a blood pressure below the normal in pneumonia is invariably of evil omen and any considerable fall bodes disaster. When the arterial pressure expressed in mm. Hg. does not fall below the pulse rate expressed in beats per minute the fact may be taken as of excellent augury, while the converse is equally true. Newburgh and Minot have investigated this question and from a study of forty-two cases of pneumonia, nineteen of which were fatal, conclude that: (1) The blood pressure curve does not suggest that there is a failure of the vasomotor centre in pneumonia. (2) Low systolic pressures are not invariably of evil omen. (3) The systolic pressure in fatal cases tends to be higher than it is in the recoveries. (4) Blood pressure measurements in pneumonia cannot be used as a basis for treatment. (5) Prognostic inferences based on the relation of the level of the systolic pressure curve to the pulse curve (Gibson's rule) are more often wrong than right. (6) The rate of the pulse and not the level of the blood pressure is the chief factor in deciding whether the blood pressure curve will fall above or below the pulse curve.

H. D. R.

OTTENBERG (R.) and LIEBMAN (E.). Blood Transfusion: Indications, Results, General Management. *Jour. Med. Sciences*, Philadelphia, 1915, vol. cl, p. 36.

This paper is based on 212 blood transfusions in 189 cases. The dangers to the patient are: (*a*) Incompatibility of the blood, namely, hæmolysis or agglutination of the red blood corpuscles of either the donor or patient by the serum of the other. Hæmolysis is the greater danger. These risks can be obviated by test tube examination of the bloods. In second and third transfusions the risk of hæmolysis is greater than in first transfusions, as immune hæmolysins may develop. (*b*) Dilatation of the heart may be caused by transfusion of too large a quantity, to avoid this, the amount of blood to be transferred should always be decided beforehand by consideration of the weight of the donor and patient, the condition of the patient and of his disease. Thus in hæmorrhage an effort to replace the blood lost should be made; in hæmorrhagic diseases and pernicious anæmia a relative small (500 c.c.) or moderate (1 000 c.c.) transfusion is usually sufficient. When the patient's heart is in an unsatisfactory state transfusion should be interrupted every few minutes. The blood of the donor must be tested for hæmolysis and for the Wesser

[illegible]

[illegible] Class [illegible] —was [illegible] possesse[illegible]

Transfusions may be [illegible] of autop[illegible] hemorrh[illegible] stage cholæmia, [illegible] to p[illegible] infections [illegible] strep[illegible] acute poisoning such as [illegible] malaria transfusion is [illegible] leads to a remission in [illegible] or less prolonged [illegible] teen while in cleven [illegible] may be roughly divided [illegible] remissions spontaneously [illegible] about by transfusion [illegible] transfusion has little effect [illegible] a different donor [illegible] of pernicious anæmia [illegible] leukæmia transfusion [illegible] fusion may be fatal by spleen [illegible] supplies the patient [illegible] the lack [illegible] transfusions in hæmophilia [illegible] bleeding [illegible] the 189 transfusion cases [illegible] ity have or [illegible] in that the condition of the patient was [illegible] of these (or 22 per cent of the whole number) [illegible]

[It is interesting, historically to recall [illegible] R Lower transfused a harmless lunatic [illegible] of sheep's blood with such apparent good [illegible] repeat the operation from time to time [illegible] but the patient objected, *vide* S Coupl[illegible] p 45, 1915]

H D R

Cooke (W E) The Nucleus of the Neutrophil [illegible] nuclear Leucocyte in Health and Disease *Jou* [illegible] *terial* Cambridge 1915 vol xix pp 484 507

A polymorphonuclear leucocyte showing [illegible] nuclear segments occur in almost constant proportions [illegible] on this basis and in 1901 Arnuth divided [illegible] ing to the shape of the different parts of the nucleus [illegible] adopted by Cooke, is to place in Class I the [illegible] with a single undivided nucleus in Class II the polymo[illegible] and so on to Class V The various segments of the [illegible] by a connected by a fine chromatin filament and [illegible] tition a thick band of nuclear tissue connecting the nuclei [illegible] nucleus cannot be regarded as divided The normal proportion [illegible] the two classes of polymorphs was based by Cooke on examination of eighty normal adults of both sexes It is convenient to group Classes I and II

together [illegible]
no [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible] oth respec [illegible] 166

[illegible] ong the com [illegible] ons thus treate [illegible] portant [illegible] splenic anæm [illegible] in its seven cases of splenectomy [illegible] operation death and a total of eight [illegible] in one case [illegible] half [illegible] after operation In the [illegible] three times at different periods [illegible] The [illegible] of operation was 36 years and the [illegible] duration of [illegible] thirty-two months

[illegible] patients with pernicious [illegible] been operated [illegible] half [illegible] with one operative death [illegible] cond death [illegible] this latter with grave [illegible] the [illegible] improved The [illegible] of the [illegible] milk) [illegible] duration [illegible] the time of operation twenty or [illegible] The [illegible] of the spleen (1st [illegible]) was [illegible] more than [illegible] (1st [illegible]) thus contrasting with [illegible] in cases of [illegible] after death where the [illegible] has been allowed to [illegible] in which the spleen has undergone atrophy

H D L

[illegible] sis [illegible] a [illegible] time [illegible] part [illegible] altic [illegible] [illegible] [illegible]

Gram pos[illegible] encapsulated and [illegible] Dugnana tion and [illegible] or early and [illegible] occur, so that after repe[illegible] the organism [illegible] morphological appearance [illegible] to that of the original culture. It is anaerobic, does not pass [illegible] Kitasato filter is killed by [illegible] for ten minutes to a temperature [illegible] and does not produce [illegible] It is found in the blood during the [illegible] period. The [illegible] investigated by Ohtsuka [illegible] the two [illegible] of the organism (a) epidemic (b) [illegible] New York or Brill's disease [illegible] is characterized by its [illegible] with mild coma and very low [illegible] complement fixation [illegible] not precipitin test [illegible] A positive [illegible] may be present five months after [illegible] but the complement fixation [illegible] probably disappears [illegible] the recrudescence [illegible] disease is in progress and will [illegible] later. After [illegible] infection the blood may [illegible] not been characteristic [illegible] of typhus, this is [illegible] of recent contacts. In epidemics [illegible] months act as carriers of infected lice. Experiments [illegible] the objections of typhus blood and of the bacillus [illegible] the [illegible] normals and that the bacillus can be recovered from the [illegible] blood. H. D. R.

NETTER (A.) [illegible] Cerebrospinal Fever. *Bull. et mém. soc. méd. les hôp. de Paris*, [illegible] 9 juillet.

Out of 230 [illegible] of cerebrospinal fever treated by anti-meningococcic serum [illegible] 12 per cent. presented arthritis. It is more often seen in children and adults than in babies. Generally one or only a few joints are affected, but in babies there appears to be a tendency for many joints, and most of the bones and feet especially, to be attacked. When arthritis occurs early in the course of the disease meningococci are found in the joints, but when arthritis occurs late, about the time that the disease is [illegible], the pus may be sterile. The intra-articular injection of anti-meningococcic serum hastens the cure of the arthritis, but the local lesion gets well even without treatment, and ankylosis is hardly ever left behind. Cases of cerebrospinal fever with arthritis usually do well, so that the occurrence of arthritis justifies a favourable prognosis. The exception to this rule is, that in young babies the reverse holds good. H. D. R.

News of the Service.

OFFICERS MENTIONED IN DESPATCHES—HONOURS AWARDED

November 5, 1915.

General Sir Ian Hamilton, Commander-in-Chief, Mediterranean Expeditionary Force, submits the following names of Officers whose services he considers deserving of special mention:—

Fleet Surgeon A. Gaskell, R.N.; Fleet Surgeon F. J. French, R.N.; Staff Surgeon A. F. Fleming, R.N.; Temporary Surgeon H. T. C. Foxell, R.N.; Temporary Surgeon J. Pratt, R.N.

Admiralty, November, 1915.

The King has been pleased to approve of the award of the Distinguished Service Cross to the undermentioned Officer of the Royal Naval Reserve in recognition of his services in the Gallipoli Peninsula:—

Surgeon John Pratt, R.N.

Foreign Office, November 19, 1915.

The King has been pleased to give and grant unto the undermentioned Officer His Majesty's Royal licence and authority to wear the Decoration which has been conferred upon him by His Majesty the King, of Serbia, in recognition of meritorious services rendered by him:—

The Cross of the Order of Saint Sava.

Surgeon Edward Rowland Alworth Mercer-Allen, M.B., R.N.

CASUALTY

Wounded, December 11, 1915: Temporary Surgeon Charles P. Schuler, R.N., Hawke Battalion, R.N.D., in Mediterranean Expeditionary Force.

PROMOTIONS

Deputy Surgeon-General George Welch to Surgeon-General, dated December [illegible], 1915.

Fleet Surgeon W. C. Axford to Deputy Surgeon-General, dated December [illegible], [illegible].

Staff Surgeon C. M. Lee-Jones to Fleet Surgeon, dated November [illegible], [illegible] (for promotion on a special list for services with British Naval Medical Expedition).

Surgeon W. H. Elliott, M.D., and Edward H. C. Gordon, M.B., to Staff Surgeons, dated November 12, 1915.

Surgeons Geoffrey Saville, Guy Vernon Hall, H. S. Oldham, S. H. Hall, Charles H. L. Fotch, and Harold H. Billington to Staff Surgeons, dated November 11, 1915.

APPOINTMENTS

Seniority.

Fleet Surgeons: R. Higle to Hospital Ship Soudan, for special service; W. F. M. Hew to the Hospital Ship Soudan; [illegible] to the Hospital; H. J. Mackeown to the Mediterranean; A. L. Eckhardt, R.N. (Retired), to Headquarters; H. E. Tomlinson, R.N. (Retired), to the Humber; M. L. Sera, M.B., F.R.C.S., to the Hospital Ship; T. C. M. Kidd, M.B., to the Clyde; A. T. [illegible], R.N. (Retired), to the Royal Victoria Yard, Dockyard; [illegible] Mahon, D.H., R.N.

[illegible]

[illegible] to Hasiac Hospital [illegible]
[illegible] Marksman [illegible]
[illegible] to the Brutus
[illegible]
[illegible] d sposal [illegible]
[illegible]
[illegible]
[

[illegible] ndill for dispensal E. Fathott [illegible] to the Victoria Hill for dispensal [illegible] A. Lewis [illegible] Victory Hill [illegible] Wordsworth [illegible] the Dock Hill S. Osborn to the [illegible] ndill for dispensal J. C. [illegible] to the V[illegible] S. [illegible] M.D. R.A.H.S. Return Hill [illegible] Hospital H. W. G[illegible] A. [illegible] J. C. Ferguson to the [illegible]

[illegible] Surgeon [illegible] to D. Wall [illegible] to the St. George [illegible] the Alum Hill [illegible] ndill for [illegible] Blunt to the [illegible] M. Hooker M.D. [illegible] Jones [illegible] M.B. [illegible] Mellor [illegible] to the Lord Hawkins to the [illegible] ndill for dispensal [illegible] A. Flanagan to the [illegible] Hill [illegible] Bridgeman [illegible] ndill for dispensal [illegible] J. S. Dunn M.D. to the [illegible] W. Chillman [illegible] K. H. Hale M.D. to the [illegible] ndill [illegible]

Temporary Surgeon [illegible] S. L. Baker to Haslar Hospital [illegible] W. Steel M.B. to Chatham Hospital [illegible] to the Lord rokendill [illegible] to the Royal Hospital [illegible] Scowcroft to the Pembroke ndill [illegible] A. McKee to Haslar Hospital [illegible] F. Scowcroft to the Dockyard [illegible] W. [illegible] ndill for dispensary A. E. A. Blathwayt to Haslar Hospital [illegible] W. [illegible] ndill to Haslar Hospital J. Cowan M.B. [illegible] Hospital A. de A. Blathwayt [illegible] A. G. Taylor M.B. to Haslar Hospital [illegible] Mannell B.A. [illegible] S. Mackie to the Mersey [illegible] MacLean to Chatham Hospital A. H. M[illegible] M.B. to the Pembroke ndill for dispensal [illegible] Boyd to the Victory [illegible] Hanigan M.B. to the Vengeance A. J. [illegible] M.B. to Chatham Hospital [illegible] S. Gross B.A. to Haslar Hospital H. F. J. McIntosh M.D. [illegible] Haslar Hospital [illegible] H. Dixie H. to Haslar Hospital

Surgeon [illegible] balcomes R.N.V.R. [illegible] Tanto to the Minerva [illegible] Bilson to the M[illegible] D. W. Mackay to the M[illegible] D. Cha[illegible] to the [illegible] H. Mainson to the Boscawen G. E. H. Hungton to the [illegible] S. Brightwater to the Mid-Hope W. A. [illegible] Meaney H. B. Alexander to the Mu[illegible] H. S. Howard to the Comet W. [illegible] to the Fury J. W. [illegible] to the Hunter [illegible] Hodge to the Ruby D. H. W. [illegible] to the Inflexible D. [illegible] Vat to the Cadmus [illegible] T. Oswald to the Pike D. Mac[illegible] to the Lee Foot H. [illegible] to the Duke of Cornwall J. H. L. Shepherd H. Vat[illegible] E. S. [illegible] to the Hum[illegible] Ale C. V. G. [illegible] to the Alexandra A. H. [illegible] the Sea Fox H. [illegible] gl[illegible] the Mersey W. D. L. Donaghue to the Indian D. [illegible] Brown H. the Amazon H. Barnemann to the Almanzora R. H. [illegible] to H. R. [illegible] H. [illegible] M. Earl N. N. Berkeley to the M[illegible] N. [illegible] the Fer[illegible]

OBITUARY

[illegible] Major M B R N [illegible] the Military Tra[illegible] [illegible] on Aug[illegible] M B C M [illegible] [illegible] entering the N[illegible] [illegible] [illegible] [

1634.—Electric Pocket Lanterns

(N.S. 13845/15.—14.10.1915.)

An [illegible] Pocket Lantern to be known as Pattern [illegible] for use in [illegible] For the present supply will be [illegible] Dep[illegible] [illegible] of the lanterns for each Medical Officer [illegible]

In [illegible] the extent to which this pattern may be [illegible] advantageous [illegible] Medical Officers are to be forwarded through [illegible] of the [illegible] to be used [illegible] for

(a) [illegible]
(b) [illegible] purposes
(c) [illegible]
(d) [illegible] Rooms and Machinery Compartments
(e) [illegible] Building
(f) [illegible] other than adoption is recommended
(g) [illegible] arrangements such as Torch [illegible]
(h) [illegible] purposes

[illegible] the purchase and delivery of the [illegible] with 500 accumulators and [illegible] supply will be made on the [illegible] expected [illegible] of the lanterns will be available [illegible] months.

1755.—Emetina Hydrochloridum—Supply of

(M.D.—5565/15.—14.10.1915.)

Ships of the Mediterranean Fleet and Adriatic Squadron carry a [illegible] to be supplied with Emetina Hydrochloridum. The scale of allowances is as follows:—

For Battleships and Cruisers	4 tubes
For Light Cruisers and Monitors	2
For small Craft	1 tube

Supplies should be drawn from Malta Hospital.

1770.—Sick Berth Staff—Examination and Promotion.

(M.13893/15.—2.10.1915.)

In the case of members of the Sick Berth Staff afloat who are desirous of sitting for their examination for a higher rating [illegible] the following alternative methods should be adopted during the period of hostilities:—

(1) A special examination should be held in any ship or in a suitable Home Port [illegible] rating be qualified for it and who be [illegible] examination. Notice should be given to the Hospital by the Commanding Officer of the ship so that the examination may be held immediately after the arrival of the ship.

(2) Men may present themselves for final examination for the rating of Leading Sick Berth Steward or Sick Berth Steward on board Hospital Ships, Sandbanks, Depôt Hospital Ships, Rest Houses, Garth Castle and Somali. The Senior Medical Officer of the Hospital Ship should be notified by the Commanding Officer of the ship which the candidate is serving

(M.O. 329/1915 [illegible])

1775.—Cerebrospinal Cases—Early Notification.

(N.M.D. 16380.—10.10.1915.)

With reference to cases of cerebrospinal meningitis or suspicion as regards contacts that may be required in dealing officers should also [illegible] such reports by telegram if possible and not by letter.

1817 Hospital Ships—Duplicate Sailing Orders.

(T 24880/15 — 3/10/1916.)

[illegible]

1818.—Hospital Ships—Correspondence

(T 24880/15 — 10/2/1917.)

[illegible]

1946.—The Treatment of Wounded on Board H.M. Ships during and after Action.

(M.D. 31291 — 13/11/1901.)

The following instructions [illegible] which the subject has [illegible] bound vessels [illegible] M.D. 333/1905 of May [illegible]

(1) In [illegible] the [illegible] Office [illegible] Hospital Ships No. [illegible] Medical Officer [illegible] Naval Office [illegible] Hospital Ship No. [illegible] Officer [illegible]

1946.—The Treatment of Wounded on Board H.M. Ships during and after Action.

(M.D. 31291 — 13/11/1901.)

The following instructions [illegible] which the subject has [illegible] bound vessels [illegible] M.D. 333/1905 of May [illegible]

(1) In [illegible] the [illegible] Office [illegible] Hospital Ships No. [illegible] Medical Officer [illegible] Naval Office [illegible] Hospital Ship No. [illegible] Officer [illegible]

(2) Nothing [illegible] opportunity [illegible] would [illegible] sounding [illegible] bugle call [illegible] rendered [illegible]

(3) [illegible] Officers of the [illegible] Flag [illegible] the [illegible] the [illegible] [illegible] [illegible]

2026.—Stretchers and Hammocks.

(N S 97660—19 11 1915)

No further purchases of Hammocks Patterns 6 and 7 for [illegible] will be made and when present stocks are exhausted Neil Robertson Stretchers [illegible] will be issued in lieu

The Establishments will be amended in due course

(4) Any stocks of Hammocks Patterns 6 and 7 remaining at West [illegible] are to be transferred to Chatham

2031.—Light Proof Scuttle Ventilators.

Dreadnoughts Battle Cruisers Cruisers and Light Cruisers

(N S 318349/16—19 11 1915)

It has been approved to supply Flat light proof scuttle ventilators [illegible] to match [illegible] with W O 1161 1915 of size and quantity to each Battleship and Cruiser and [illegible] each Light Cruiser

Detailed reports should be forwarded from each Squadron stating sizes of side lights and quantities required for each ship Purchase and supply will then be [illegible]

(W O 1161/1915)

Notices.

The Editors invite Medical Officers to send [illegible] professional subjects, travel personal exper[illegible] of news and matters of interest to the Naval Medical S[illegible] welcomed from ships and establishments on home and [illegible]

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[illegible] be made to [illegible] Original [illegible]

[illegible] the ab[illegible] must be [illegible] a [illegible] for p[illegible] will be charged [illegible]

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

[illegible]

AS TO FOR [illegible] and useful cases [illegible] [illegible] from the [illegible] [illegible] rates —

[illegible]

The [illegible] charges are [illegible] cost of postage

In [illegible] rewarding parts for [illegible] name and address of sender should [illegible] parcel

All Applications [illegible] to be made to—

VAN ALEN AND [illegible] & CO [illegible] STREET LONDON W C